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TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1901.

No. 181

JOHN A. BRILL AND THE J. G. BRILL COMPANY, PETITIONERS,

vs.

THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT.

PETITION FOR CERTIORARI FILED [illegible]

[illegible]

(18,297.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1901.

No. 444.

JOHN A. BRILL AND THE J. G. BRILL COMPANY, PETITIONERS,

vs.

THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET AL.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT.

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a United States Circuit Court of Appeals for the Second Circuit.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
v.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY, EDGAR Peckham, W. G. Price, Erwin G. Long, and Theodore Spore, Defendants, Appellants.

Transcript of Record.

Appeal from the circuit court of the United States for the southern district of New York.

[Stamped:] United States circuit court of appeals, second circuit. Filed Jan. 17, 1901. William Parkin, clerk.

1 Circuit Court of the United States, Southern District of New York. In Equity.

Between—

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants,
and
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY, EDGAR Peckham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.

To the honorable the judges of the circuit court of the United States for the southern district of New York, sitting in equity:

John A. Brill, of Philadelphia, in the State of Pennsylvania, and the J. G. Brill Company, a corporation organized under the laws of the State of Pennsylvania, bring this bill of complaint against the Peckham Motor Truck and Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long, John H. Bickford and Theodore Spore.

And thereupon your orators complain and say as follows:

1. They are informed and believe and here aver that the Peckham Motor Truck and Wheel Company is a corporation or-
2 ganized and existing under the laws of the State of New York and a citizen thereof, having its principal office and doing business in the city of New York, borough of Manhattan, in the State of New York, and having its manufacturing plant and business at Kingston, both in the southern district of New York; and is an inhabitant of the southern district of New York; that Edgar Peckham is an inhabitant of the city of New York, borough of Manhattan, in the southern district of New York, and is, and has been since its organization in 1891, president and a director of The Peckham Motor Truck and Wheel Company, defendant; that W. G. Price is an inhabitant of Kingston, in the southern district of New York; that Erwin G. Long has a regular and established place of business

in the city of New York, borough of Manhattan, and at Kingston, both in the southern district of New York, and is, and has been for several years last past, office president of the said company; that John H. Bickford has a regular and established place of business in the city of New York, borough of Manhattan, in the southern district of New York; and that Theodore Spore is an inhabitant of said Kingston, in the southern district of New York, and is, and has been for several years last past, secretary of the said defendant corporation. That the said Price, Long, Bickford and Spore are and have been for several years last past directors of the said defendant corporation, The Peckham Motor Truck and Wheel Company.

2. Your orators are informed and believe that George Martin Brill, of Philadelphia, was, before the twenty-sixth day of June, 1891, the original and first inventor of certain new and useful improvements in car trucks, which improvements had not been known or used before his invention thereof.

3. That so being the original and first inventor of the said
3 improvements, and the same not having been known or used by others in this country before his invention thereof, and not having been patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application for letters patent thereon, and not having been in public use or on sale in this country for more than two years prior to his said application, and not having been abandoned, he, the said George Martin Brill, made application in due form of law to the Commissioner of Patents for letters patent of the United States for the said invention. Thereupon such proceedings were had that letters patent of the United States were granted and issued in due form of law and delivered to him, said letters patent being numbered 478,218, and dated July 5, 1892, whereby was secured to him, George Martin Brill, his executors, administrators or assigns, for the term of seventeen years from the date of the said letters patent, the full and exclusive right and liberty of making, using and vending to others to be used, the said improvements throughout the United States, as by the said letters patent or a duly authenticated copy thereof in court to be produced, will fully and at large appear; and the said George Martin Brill was thereafter continuously the exclusive owner of the said letters patent, and of all the rights secured thereby, until the third day of December, 1894, when, by an assignment in writing of that date, executed and delivered by said George Martin Brill, he assigned, sold and set over unto your orator, John A. Brill, all his right, title and interest in and to the said letters patent, and all the rights thereby secured, which said assignment was duly recorded in the Patent Office of the United States, in Liber M 50, page 300, of Transfers of Patents, as by said assignment and the certificate of such recording thereto affixed, or by a duly authenticated copy thereof, ready in court to be produced, will fully and at large appear.

And the said George Martin Brill, did, on July 6, 1897, by an
4 instrument in writing of that date, assign, sell and set over unto your orator, John A. Brill, all the right, title and inter-

est which he had at that time under said letters patent, together with all his rights to all damages and profits then due and owing to him from any and all persons whatsoever by reason of any infringement thereof, and the right to sue for, recover and collect the same, which said assignment was duly recorded in the Patent Office of the United States, in Liber E 56, page 172, of Transfers of Patents, as by the said assignment and certificate of such record thereto affixed, or by a duly authenticated copy thereof, ready in court to be produced, will fully and at large appear.

4. And your orators further show unto your honors that by virtue of the premises John A. Brill became and has since been, and now is, the sole and exclusive owner of said letters patent, numbered 478,218, and of the invention described therein, and of all the rights and privileges granted and secured, or intended to be granted and secured thereby and of the rights of action thereunder, and The J. G. Brill Company, complainant, by virtue of a verbal agreement between it and the said John A. Brill, entered into more than six years before the commencement of this suit, has ever since December 3, 1894, been and now is the sole and exclusive licensee thereunder for the entire United States, and is now and has been since the last-mentioned date, engaged in the manufacture of car trucks under said license.

5. And your orators further show unto your honors that the said inventions and improvements are very valuable and useful to the public, and the same have been extensively introduced into public use, and that your orators' rights in the premises have been generally acquiesced in and recognized by the public, and your orators would, but for the wrongful acts of the said defendants, and others acting in concert with the said defendants, have made large gains and profits from the manufacture, use and sale of the said inventions, which they have been and are now hindered from making by reason of said wrongful acts of the said defendants.

6. And your orators further show unto your honors, upon information and belief, that the said defendants, well knowing the premises and the rights and privileges secured unto your orators, and in order to deprive them of the profits, benefits and advantages which might and otherwise would have accrued to them, at the city of New York, borough of Manhattan, New York, and at Kingston, New York, both within the said southern district of New York, and elsewhere within the United States, and without the license and permission of your orators or of the said George Martin Brill, have, before the commencement of this suit and within six years preceding the said commencement, and since July 5, 1892, unlawfully and wrongfully manufactured and sold street or other cars containing on each car the said inventions and improvements, described and patented in the said letters patent, numbered 478,218.

7. And your orators further show unto your honors that the said inventions and improvements so patented as aforesaid are important and useful elements in the construction of a useful and efficient street or other car, and your orators are informed and believe that

the said inventions and improvements so patented as aforesaid have been manufactured and sold by the defendants on street cars, and that a large number of such cars so manufactured and sold by the defendants contain and use, each one of them, the inventions and improvements set forth, which said unlawful manufacture and sale by the defendants as aforesaid are a violation and infringement of your orators' exclusive rights and privileges, and to your orators' great and irreparable loss and injury, and by which your orators have sustained and been put to a great loss and damage, and
6 have been and still are deprived of great gains and profits, which your orators might and otherwise would have obtained and received, but which have been received and enjoyed, and are being received and enjoyed, by the said defendants, by and through their aforesaid unlawful acts and doings; and that the said defendants have derived and received and are still deriving and receiving therefrom great gains and profits, but to what amount your orators are ignorant and cannot set forth, but your orators believe the same to be about the sum of $250,000, and so charge the fact to be, and pray that the said defendants may be required to make a discovery as to their manufacture and sale of said inventions and of all gains and profits received by them therefrom or by reason thereof.

8. And your orators further show unto your honors that the aforesaid manufacture and sale of said inventions and improvements by the defendants and their confederates, and their preparation and determination to continue the same, and the aforesaid unlawful and wrongful acts have the effect to encourage and induce other persons to infringe and defy the letters patent as aforesaid, and the aforesaid rights and privileges of your orators.

9. And your orators further show unto your honors, that the said defendants have long since had notice of your orators' rights in the premises, and have been warned and requested and notified to desist and refrain from said infringement and said unlawful and wrongful acts, but the said warning and request and notice have been wholly disregarded by said defendants, and the said defendants still continue the infringement and unlawful and wrongful acts aforesaid, and now threaten and intend so to do.

10. And your orators further aver that upon the tenth
7 day of July, 1897, the said John A. Brill filed his bill of complaint in equity in the circuit court of the United States for the southern district of New York, against The Third Avenue Railroad Company, a corporation organized under the laws of the State of New York, and operating a street railway in the city of New York in said district. That in said bill and in an amendment thereto, he averred the grant of letters patent of the United States, No. 478,218, dated July 5, 1892, to George Martin Brill; that by two several instruments in writing, the one dated December 3, 1894, the other dated July 6, 1897, and both recorded in the Patent Office of the United States, the said George Martin Brill transferred and assigned to the complainant therein the said letters patent, and all rights thereby secured, and rights of action arising thereunder; that, without the license or permission of the complainant therein,

or the said George Martin Brill, the defendant therein had unlawfully and wrongfully used street or other cars containing the inventions or improvements described and patented in the said letters patent, numbered 478,218, and had infringed upon the rights of the complainant therein under said letters patent, and praying that the defendent therein be compelled by decree to account for and pay over to the complainant therein, all such gains and profits as had accrued to the defendant therein by reason thereof, and all damages sustained by the complainant therein, by reason of said infringement by the defendant therein, and further praying that an injunction of the court be directed to the defendant therein, restraining the said defendant from directly or indirectly making or causing to be made, using or causing to be used, or vending to others to be used in any way, any street or other cars containing or embodying or counterfeiting or imitating the said invention described and claimed and secured in the said letters patent, and from infringing upon or violating the rights of the complainant therein, under the said letters patent. Whereupon an answer to the said bill of complaint was filed in the said cause by The Third
8 Avenue Railroad Company, defendant therein. The entire defense of the said cause was undertaken and conducted by The Bemis Car Box Company, a corporation engaged in the manufacture of car trucks, which had manufactured and appeared by the proofs in the cause, to have manufactured the truck structures therein complained of, to the number of one hundred and eighty-one; their counsel appeared of record for the said defendant therein, and conducted and controlled the proceedings at all stages thereof.

After replication filed, the proofs for final hearing were duly taken, and the cause, on June 1, 1900, came on for final hearing before his honor Judge Shipman, upon bill, answer and proofs, and was argued by counsel on behalf of the respective parties, counsel for defendant acting therein also on behalf of the Bemis Car Box Company. Whereupon the court, upon consideration, handed down and filed, on July 9, 1900, its opinion sustaining the validity of the said letters patent as to claims Nos. 1, 2, 9, 10, 11, 12, 14 and 27, and directing the entry of a decree, with costs, for an injunction against the infringement by the defendant of the rights of the complainant therein, under the said claims and for an accounting. Whereupon, on July 26, 1900, a decree was entered and filed in the said cause that said letters patent No. 478,218, to George Martin Brill, were good and valid as to claims Nos. 1, 2, 9, 10, 11, 12, 14 and 27 thereof, and that the complainant therein was entitled to the exclusive rights therein and that the defendant therein, The Third Avenue Railroad Company, had infringed upon the exclusive rights of the complainant therein under the said claims and that the complainant therein should recover from the defendant therein, The Third Avenue Railroad Company, the gains, savings and advantages which it had derived by reason of the said infringement and all damages which the complainant therein had sustained by reason thereof, and that a perpetual injunction issue out of, and

under the seal of the said court, enjoining the defendant
9 therein, The Third Avenue Railroad Company, from directly or indirectly using or causing to be used, making or vending, street or other car trucks embodying or imitating the said invention described and secured in said letters patent and the said claims thereof, and from infringing upon the same and upon the rights thereunder of the complainant therein; and thereafter, to wit, on July 30, 1900, a writ of injunction issued out of and from the said court in the said cause, enjoining and restraining the defendant therein, The Third Avenue Railroad Company, its officers, trustees, directors, managers, attorneys, servants and workmen, from directly or indirectly making, vending or using, any street or other car trucks containing or embodying or in any way counterfeiting or imitating the devices and inventions in the said letters patent and in claims Nos. 1, 2, 9, 10, 11, 12, 14 and 27 thereof and from infringing upon the rights thereunder of the complainant therein, and thereafter, on October 1, 1900, the said court entered and filed a decree in the said cause that the complainant therein do recover the sum of one dollar as nominal damages and profits and the sum of $971.49 costs, the complainant therein having waived an accounting. No appeal has been taken from the said decrees.

11. And your orators further aver that on October 13th, 1900, they did, by a joint writing, attested by one or more witnesses, file for record in the Patent Office a disclaimer of claim 17 of the letters patent in suit, No. 478,218, as by the said disclaimer or a duly certified copy thereof, in court to be produced, will fully and at large appear.

12. And your orators pray that the said defendants may be compelled by a decree of this honorable court to account for and pay over unto your orators all such gains and profits as have accrued or arisen to or have been earned or received by the said defend-
10 ants, and all damages your orators have sustained by reason of the said infringement by the said defendants, and that this court may assess said profits and damages and may increase the damages to a sum not exceeding three times the amount thereof.

13. And that the said defendants and their officers, agents, attorneys, servants and workmen, be enjoined and restrained by the order and injunction of this court from directly or indirectly making or causing to be made, using or causing to be used, or vending to others to be used, in any manner, any street or other cars containing or embodying or in any way counterfeiting or imitating any of the said inventions described and secured in the said letters patent, and from infringing upon or violating the said letters patent by the manufacture, use or sale of street or other cars in any way whatever, and that the said defendants may be decreed to pay the costs of this suit, and may be enjoined and restrained as aforesaid during the pendency of this suit, and that your orators may have such other or further relief as to this honorable court shall seem meet and shall be agreeable to equity.

To the end, therefore, that the said defendants may, if they can, show cause why your orators should not have the relief hereby

prayed, and direct and perfect answers make according to the best of their officers', agents', attorneys', clerks', servants' and workingmen's knowledge, remembrance, information and belief, to the several matters hereinbefore set forth, as fully and particularly as if the same were repeated here, paragraph by paragraph, and they thereto severally and specifically interrogated,

May it please your honors to grant to your orators a writ of *subpœna ad respondendum*, issuing out of and under the seal of this honorable court, directed to the said defendants, The Peckham Motor Truck and Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long, John H. Bickford and Theodore Spore, com-
11 & 12 manding them by a certain day and under a certain penalty, to be and appear before this honorable court, then and there to make answer to this bill of complaint, but not under oath, which is waived, and to perform and abide by such order and decree herein as to this court may seem meet and agreeable to equity.

And your orators will ever pray, etc.

JOHN A. BRILL.
J. G. BRILL CO.
GEORGE MARTIN BRILL, *Pres't.*

Attest: JAMES RAWLE, *Secretary.*

COUNTY OF PHILADELPHIA, }
State of Pennsylvania. }

Before me personally appeared George Martin Brill, who, being duly sworn, says that he is the president of The J. G. Brill Co., one of the parties complainant herein; that the facts hereinabove averred are true, except so far as the same are averred upon information and belief, and as to these, he believes them to be true.

GEORGE MARTIN BRILL.

Sworn to and subscribed before me this 13th day of October, 1900.

HENRY C. ESLING,
[SEAL.] *Notary Public.*

JOSEPH L. LEVY,
Complainants' Sols., 206 *Broadway, N. Y.*
FRANCIS RAWLE,
Of Counsel for Complainants.

13 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants,
against
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY, EDGAR Peckham, W. G. Price, Erwin G. Long, and Theodore Spore, Defendants.

The joint and several answers of the respondents, The Peckham Motor Truck & Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long, and Theodore Spore, to the bill of complaint of John A. Brill and The J. G. Brill Company, complainants.

The said defendants, now and at all times hereafter, saving and reserving unto themselves all benefit and advantage of exception that may or can be had or taken to the manifold errors, uncertainties, imperfections and insufficiencies in the said bill of complaint contained, for answer thereunto, or unto so much and such parts thereof as they are advised is or are material or necessary for them to make answer unto, answering, say:

First. The said defendants admit that the Peckham Motor
14 Truck & Wheel Company is a corporation duly organized and existing under the laws of the State of New York; that Edgar Peckham, since its organization, has been the president and a director of said company, and that Theodore Spore is the secretary of said company, and that W. G. Price, Erwin G. Long, John H. Bickford and Theodore Spore are directors of said company.

Second. The said defendants have been informed, and admit it to be true, that upon application by one George Martin Brill, of Philadelphia, in the State of Pennsylvania, letters patent of the United States were granted and issued to the said George Martin Brill upon the 5th day of July, 1892, numbered 478,218 for an alleged improvement in car trucks. But the said defendants aver that they do not know, and are not informed, save by said bill of complaint, whether or not said George Martin Brill did properly make application for said patent, and did comply with all the requirements of law and did have said patent issued to him in due form of law. Therefore the said defendants deny the same *pro forma* and leave the complainants to their proof.

Third. The said defendants, further answering, say that they do not know and are not informed, save by said bill of complaint, whether or not said George Martin Brill sold or assigned his right, title and interest in and to said letters patent and alleged invention, described in said letters patent, or any interest therein to the said John A. Brill; or whether or not the said J. G. Brill Company in any manner or by any means became the sole and exclusive licensee under said letters patent; or whether or not said alleged assignment was ever recorded; as is alleged in the third and fourth subdivisions of said bill of complaint. The said defendants therefore

deny the allegations in said third and fourth subdivisions
15 contained, *pro forma*, and leave the complainants to their proof.

Fourth. And said defendants on information and belief deny that by virtue of any such patent, or assignment, or license as mentioned in said bill of complaint, said complainants became or ever were possessed of or vested with any exclusive right to make, use and sell in the United States or elsewhere the alleged invention shown and described in said letters patent.

Fifth. And said defendants, further answering, deny that the said invention so patented to the said George Martin Brill is of great or any utility and value; or that the same has been extensively introduced into public use; or that the public generally or any portion thereof have acquiesced in and acknowledged the complainants' exclusive rights to the same, or any portion thereof; or that the complainants would have made any large gains and profits from the manufacture, use and sale of said invention, but for the wrongful acts of said defendants, or that said complainants ever have been, or are now hindered from making any gains and profits whatever by reason of any wrongful acts whatsoever of said defendants.

Sixth. And said defendants, further answering, deny that the alleged inventions and improvements described and claimed in complainants' patent in suit are important and useful elements in the construction of a useful and efficient street or other car, as is in subdivision 7 of said bill of complaint alleged; and said defendants aver that said alleged inventions and improvements are useless, and detrimental and impotent to effect the purpose or result, which they are alleged to accomplish; and said defendants, upon information and belief, further say that the manufacture and sale of car trucks embodying said alleged inventions or improvements,
16 has been abandoned by said complainants for now about three years because the demerits of said alleged inventions or improvements had become known to those engaged in operating street railway cars, so that cars embodying the same were no longer saleable except to the inexperienced; and that in many cases such car trucks have been discarded and withdrawn from use by those operating street railways who have purchased them from the complainants herein, because of said demerits.

Seventh. And said defendants, further answering, say that said George Martin Brill was not the original and first inventor or discoverer of any material and substantial part of the thing patented, and that the following are the names and residences of the persons who have had knowledge and made use of the thing patented, and of every material and substantial part thereof, prior to the alleged invention thereof by said George Martin Brill, and the names of the places where such use was had and known:

S. G. Steves, of and at Jamestown, New York, and at other places.

Josiah Ashenfelder, of and at Philadelphia, Pennsylvania, and at other places.

Charles T. Schoen and Charles Scott, both of and at Philadelphia, Pennsylvania, and at other places.

Benjamin F. Manier, of and at Troy, New York, and at other places.

John A. Brill, of and at Philadelphia, Pennsylvania, and at other places.

Edgar Peckham, of and at New York, N. Y., and at other places.

Horace G. Bird, of and at Chicago, Illinois, and at other places.

John Taylor, of and at Troy, New York, and at other places.

John H. Bickford, of and at Salem, Massachusetts, and at other places.

17 James T. Robinson, of and at Altoona, Pennsylvania, and at other places.

Moses G. Hubbard, of and at Chicago, Illinois, and at other places.

William S. G. Baker, of and at Baltimore, Maryland, and at other places.

Bernard J. La Mothe and the officers and employees of the New York Rolling Stock Company, of and at New York, N. Y., and at other places, and many others, whose names these defendants have not yet ascertained, but which they crave leave to insert in this answer as soon as ascertained.

Eighth. That the thing patented in said letters patent had been patented and described prior to said George Martin Brill's supposed invention or discovery thereof, in and by the following letters patent granted to the following-named persons, to wit:

U. S. Letters Patent.

No. 64,378, granted to S. G. Steves, April 30, 1867, for car truck.

No. 93,945, granted to Josiah Ashenfelder, Aug. 24, 1869, for car truck.

No. 255,200, granted to Charles T. Schoen, March 21, 1882, for car spring.

No. 357,811, granted to George M. Brill, February 15, 1887, for running gear for railway cars.

No. 409,993, granted to Benjamin F. Manier, Aug. 27, 1889, for car truck.

No. 418,441, granted to John A. Brill, December 31, 1889, for railway car.

No. 419,876, granted to Edgar Peckham, Jan. 21, 1890, for car truck.

No. 432,115, granted to John A. Brill, July 15, 1890, for street car.

No. 436,031, granted to Horace G. Bird, September 9, 1890, for railway car.

18 No. 437,167, granted to John Taylor, September 23, 1890, for car truck.

No. 450,608 granted to John H. Bickford, April 21, 1891, for car truck.

No. 451,952 granted to James T. Robinson, May 12, 1891, for car truck.

No. 457,740 granted to Moses G. Hubbard, August 11, 1891, for car truck.

No. 460,348 granted to William S. G. Baker, September 29, 1891, for car truck.

No. 373,640 granted to John A. Brill, November 22, 1887, for railway car.

No. 402,169 granted to Bernard J. La Mothe, April 30, 1889, for car truck.

And many others which these defendants have not yet ascertained, but which they crave leave to insert in this answer as soon as ascertained.

Ninth. And said defendants, further answering, deny that they have ever contrived to injure said complainants, or to defraud them of any profits, benefits, or advantages whatsoever; and said defendants further deny that they have heretofore at any time manufactured, sold, or used, or that they are now manufacturing, using or selling street or other cars containing the said alleged inventions or improvements described in said letters patent numbered 478,218; and said defendants deny that they ever have in any way, or do in any way infringe said patent.

Tenth. And said defendants, further answering, say they are informed and believe and therefore admit that suit was brought in the circuit court of the United States for the second circuit by John A. Brill against the Third Avenue Railway Company, a corporation operating a street railway in the city of New York, for the alleged infringement of said letters patent, and that said suit was decided in favor of the complainant. But as to exactly what proceedings were had in said suit, defendants are not precisely informed save by the bill of complaint herein; they therefore deny *pro*
19 *forma* the allegations contained in the 10th subdivision of said bill of complaint, except as hereinbefore admitted, and leave the complainants to their proof.

But said defendants allege on information and belief that the said Third Avenue Railway suit was a friendly suit, and that the same was not contested on the part of the defendants with the earnestness of which the facts and the state of the prior art admitted, and that had said suit been so contested the result would have been in defendants' favor.

And the said defendants, further answering the 10th subdivision of the bill of complaint herein, aver on information and belief that the car truck used by the defendants in said Third Avenue Railway case and alleged to be an infringement and which was adjudged to be an infringement therein, was a Chinese copy of the car truck described and claimed in complainants' patent No. 478,218, which was the patent in suit in that and in this case.

And these said defendants deny of their own knowledge that they have ever at any time made, used, or sold any car truck whatsoever in any manner resembling either in structure or in mode of operation the car truck adjudged to be an infringement in said Third Avenue Railway suit, as far as any feature or features described and claimed in the patent here and there in suit are concerned; and that the adjudication in said Third Avenue Railway case has no material bearing whatsoever upon the issue in this present suit.

Eleventh. And said defendants, further answering, say they are not informed except by said bill of complaint as to whether or not said complainants have filed a disclaimer to claim 17 of the patent in suit, as alleged in subdivision 11 of the bill of complaint herein. They therefore deny the same *pro forma*, and leave the complainants to their proof.

20 Twelfth. And said defendants Edgar Peckham, W. G. Price, Erwin G. Long and Theodore Spore, jointly and severally, deny that since the issue of *my*plainants' patent in suit they, or either of them, have individually made, used or sold any car trucks whatever save and except as employees of the defendant, The Peckham Motor Truck & Wheel Company; and said defendants aver that all the car trucks heretofore made and sold by said Peckham Motor Truck & Wheel Company, or by said defendants, Edgar Peckham, W. G. Price, Erwin G. Long and Theodore Spore, as employees of said Peckham Motor Truck & Wheel Company, are, and have been, each and every one of them, very different in construction and in mode of operation from anything described and claimed in said letters patent in suit.

Thirteenth. And said defendants deny all and all manner of unlawful combination and confederacy wherewith they are by said bill charged, without this, that there is any other matter, cause or thing in the said complainants' said bill of complaint contained material or necessary for these defendants to make answer thereto, and not herein and hereby well and sufficiently answered, confessed, traversed and avoided or denied, is not true to the knowledge or belief of these defendants, all which matters and things these defendants are ready and willing to aver, maintain and prove as this honorable court shall direct, and humbly pray to be hence dismissed, with their reasonable costs and charges in this behalf most wrongfully sustained.

PECKHAM MOTOR TRUCK & WHEEL CO.
E. PECKHAM, *Presid't.*
EDGAR PECKHAM.
ERWIN G. LONG.
THEODORE SPORE.
W. S. PRICE.

21 HENRY P. WELLS,
Solicitor for the Defendants.

Office and post-office address, 35–37 Nassau street, borough of Manhattan, New York city.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

Edgar Peckham, W. G. Price, Erwin G. Long and Theodore Spore, being jointly and severally sworn, deposes and says each for himself, that he is one of the defendants named in the foregoing answer by him subscribed; that he has read the same and knows the contents thereof, and that the same is true of his own knowledge except

as to the matters therein stated on information and belief, and that as to those matters he verily believes it to be true.

EDGAR PECKHAM.
ERWIN G. LONG.
THEODORE SPORE.
W. G. PRICE.

Subscribed and sworn to before me this 27th day of November, 1900, as to Edgar Peckham and Erwin G. Long.

[NOTARIAL SEAL.]

W. L. MURRAY,
Notary Public, N. Y. Co.

Subscribed and sworn to before me the 30th day of November, 1900, as to Theodore Spore and W. G. Price.

[NOTARIAL SEAL.]

JNO. J. RILEY,
Notary Public, Ulster Co.

22 *Notice of Filing Bill of Complaint.*

United States Circuit Court, Southern District of New York.

JOHN A. BRILL and J. G. BRILL COMPANY, Complainants,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY, Edgar Peckham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.
} In Equity.

To the above defendants and each of them:

Please take notice that a bill of complaint has been this day filed in the above-entitled case in the circuit court of the United States for the southern district of New York, and that upon the said bill of complaint, the affidavits of Joseph P. Livermore, John A. Brill, George Martin Brill, Charles G. Hensley, Charles W. Benjamin, Samuel M. Curwen, Vincent C. Anderson, James Fagan, John N. Akarman, Harvey M. Littell, and exhibits and letters patent No. 478,218, dated July 5, 1892, to George Martin Brill, in said bill referred to, and upon the record in the case of John A. Brill *vs.* The Third Avenue Railroad Company, pending in the United States circuit court for the southern district of New York (copies of which bill, affidavits, exhibits, letters patent, and of said record, are delivered to you herewith), counsel on behalf of complainant
23 will, on the 19th day of October, 1900, at the opening of the court or as soon thereafter as counsel can be heard, make an application to the said court for a preliminary injunction until the final hearing of the said cause, restraining you and each of you the Peckham Motor Truck & Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long, John H. Bickford and Theodore Spore, and

your officers, agents, attorneys, servants, and workmen, or either of them, from infringing upon claims one (1) and — (2) of the said letters patent referred to above and in the bill of complaint herein.

New York, October 15th, 1900.

JOSEPH L. LEVY,
Solicitor for Complainants, 206 Broadway, Borough of Manhattan, New York City, N. Y.

FRANCIS RAWLE, Esq., *Of Counsel.*

27 Patent in suit "E."

UNITED STATES PATENT OFFICE.

GEORGE MARTIN BRILL, of Philadelphia, Pennsylvania.

Car-truck.

Specification forming part of Letters Patent No. 478,218, dated July 5, 1892.

Application filed June 26, 1891. Serial No. 397,563. (No model.)

To all whom it may concern:

Be it known that I, George Martin Brill, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have made new and useful improvements in car-trucks, of which the following is a specification.

My invention relates to the application of what is known as an "extended spring-base" to trucks for street-cars.

The main object of my invention is to enable a truck of comparatively short wheel-base to be used and to support a car-body upon it, the ends of which overhang the ends of the truck for some distance.

My invention is also intended to overcome in a measure the end vibration or oscillation of the car-body and movable portion of the truck to which the car is secured.

In my structure I mount upon the axle-boxes, either rigidly or flexibly, what are known in the art as "side beams," which singly or when united laterally form a frame which is not affected either by the up-and-down vibrations of the car-body or movable portion of the truck or when the said frame is flexibly supported upon the axle-boxes by the lateral thrust of the axles. At a point where the side beams extend close to the axle-boxes they are secured to axle-box saddles, which saddles have extensions which provide seats for the "axle-box springs," (so-called,) and are also apertured to permit spring-posts to pass through them. Upon these axle-box springs (which, in conjunction with the spring-posts and bracing for the same, form the pedestals for the axle-boxes) rests the upper chord of the truck. The upper part of the spring-post passes through the upper chord, said upper chord resting upon the said axle-box springs, and through the instrumentality of certain bracing to be hereinafter described a movable truck-frame is secured. This upper chord and its accompanying bracing, including the axle-box bracing, form the movable part of the structure, which partakes of the up-and-down movement of the car-body, this motion being ordinarily taken upon the axle-box springs. The upper chord and its bracing are herein termed the "movable portion" of the truck structure, the side beams with or without their lateral connections the "independent frame," and the spiral springs shown in the drawings the "axle-box springs." The side or longitudinal sections

of the upper chord are extended for some distance beyond the axle-boxes, and the side beams are also likewise extended. The upper chord is thus extended for the purpose of giving a firm bottom for the car and through the instrumentality of the supporting devices described further on a greater carrying capacity. The spiral springs, which are supported by or about the axle-boxes, normally take the weight of the car.

Between the extended sections of the upper chord and the side beams I place elliptical springs, which preferably extend longitudinally of the truck and which are so disposed that they will not be brought into action until the weight of the load on the axle-box springs begins to depress said springs abnormally. Then the elliptical springs begin to act and assist the spiral springs in resisting the pressure of the load.

In the present practice, where cars of great carrying capacity are used upon roads having sharp and frequent curves, it is necessary to provide as short a wheel-base as possible in order that the rounding of such curves may be successfully performed, and also to provide an upper chord which will have comparatively a very large extension outwardly from the axle-boxes, in order to more rigidly support the car-body on the truck, by which a greater carrying capacity is obtained. This gives the opportunity to carry greater loads, and under such conditions it has been found necessary to use springs which are stronger than usual to support the car-body on the truck. These heavy springs have their disadvantages, as they were found to be too quick in their action. To overcome this, it has been attempted to use supplemental spiral springs between the extended portion of the spring-base and the car-body—such, for instance, as spiral springs at or upon the axle-boxes and supplemental spiral springs located elsewhere between the extended spring-base and the car-body. This has not been found to work satisfactorily, and an adaptation of my invention consists in making the axle-box springs comparatively weaker and slower than
28 has formerly been done and to place elliptical springs in such a way as to assist the spiral springs in resisting the abnormal depression of the car and in equalizing the end oscillation of the same, the elliptical springs being slower in their action than the spiral springs.

In practice it has also been found that where a very heavy load has been carried on an extended portion of the side beams they have been very apt to break or fracture at or near the axle-boxes, and this very often occurs where the sections of the side beams are united together at the axle-boxes by means of a saddle which straddles the axle-box, the saddles splitting over the axle-boxes.

A part of my present invention is to provide a truss or brace for the purpose of supporting the extended ends of the side beam.

My invention also consists in the details of the truck structure and combination of parts hereinafter set forth.

(Here follow diagrams marked pp. 24 & 26.)

(No Model.) 2 Sheets—Sheet 1

G. M. BRILL.

CAR TRUCK.

No. 478,218. Patented July 5, 1892.

No. 444 Brill v. Pratt & C. p. 24

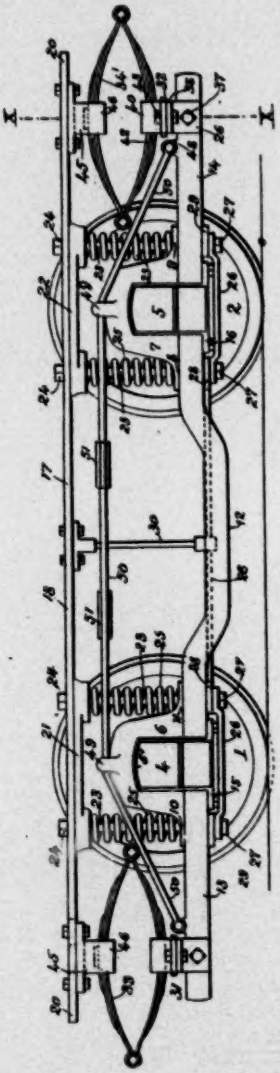


Fig. 1.

ATTEST:
M. C. Stoddard
A. E. Dunbar

INVENTOR:
George Martin Brill
by Joseph P. Ryan
Attorney

(No Model.) 2 Sheets—Sheet 2.

G. M. BRILL.

CAR TRUCK.

No. 478,218. Patented July 5, 1892.

Fig. 2.

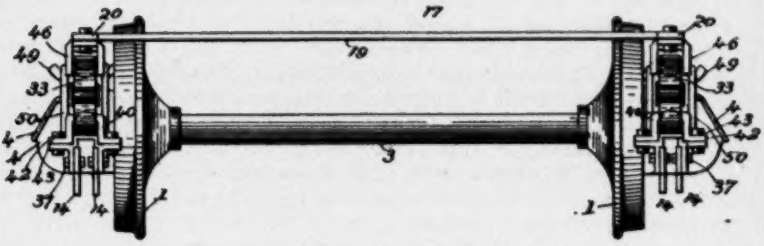
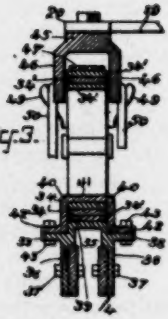


Fig. 3.



No 444 Brill & Peckham p. 26

ATTEST:
H. G. Dunlap
M. E. Stoddard

INVENTOR:
George Martin Brill
by Joseph R. Lacey
Attorney

In the drawings, figure 1 is a side elevation of my truck; Fig. 2, an end elevation of the same from either end; Fig. 3, a vertical section taken on the line *x x*, Fig. 1.

Similar numerals of reference refer to like parts throughout the several views.

In the drawings, 1 and 2 are the wheels; 3, the axles, (but one is shown in full,) and 4 5 the axle-boxes.

6 and 7 are saddles supported on the axle-boxes either rigidly, flexibly, or in such a manner as to be capable of a movement in the line of the axle. If desired, an elastic cushion of rubber or such like material 5′ can be placed between the saddles and axle-boxes. The saddles are provided with extensions 8 9 10 11, which provide supports for what I have termed the "axle-box springs." The central longitudinal sections 12 of the side beams are secured at their ends to the legs 8 and 11 of the axle-box saddles at each side thereof, and the outwardly-extending sections which form the base or bed of the extended spring-base are formed of the sections 13 and 14, the ends of which are secured to the legs 9 and 10 of the saddles on both sides thereof. These extensions 13 and 14 extend some distance out from the axle-boxes—in fact, to an extent much greater than that ordinarily resorted to. The lower ends of the saddles 6 and 7 are closed by cross-bars 15 and 16, bolted or otherwise secured thereto. The side beams may be united laterally to form an integral frame; but this does not enter into the present invention to any material extent, and so I have not shown them as united, for the side beams act herein as an independent frame or support.

This truck is to be distinguished from trucks of the ordinary structure by reason of the fact that it comprises two distinct parts—one part comprising (apart from the running-gear) the side beams or frame and another part comprising the upper chord with its bracing and spring-posts. The first I shall term the "stationary frame," (although it is not stationary in the true sense of the word, because there is a play of the axles in the boxes and there may be a movement of the side beams,) because it is not affected by the movement of the car-body to any appreciable extent, and the other the "movable portion" of the structure, for the reason that it partakes of the up-and-downward movement of the car-body and all its movements on its supporting springs.

The movable structure comprises the following parts: The upper chord upon which the body of the car rests is shown at 17. It is rectangular in form, preferably, and has longitudinal side sections 18 and lateral end sections 19, and it may be formed or constructed in the usual manner and is provided with extensions 20. Spring-plates 21 22 are secured to the upper chord in any desirable manner. 23 are spring-posts which extend through the legs of the saddles downwardly and upwardly through the spring-plates and upper chord, at which end they are provided with bolts 24. 25 are what I call the "axle-box springs," which surround the spring-posts and which find seats at one end in the spring-plates 21 22 and at their lower ends in the legs of the axle-box saddles. 26 are cross-bars uniting the ends of the spring-posts which pass through them,

the said cross-bars being secured by means of the bolts 27. The inner spring-posts are connected together by a longitudinal truss-rod 28, through which the spring-posts pass, the ends of said truss-rod being located between the bottom of the saddles and the cross-bars 26. The cross-bars 26 are squared on the spring-posts by a block 29, inserted between them and the bottom of the saddles. A perpendicular truss-rod 30, located between the inner spring-posts, is secured at one end to the upper chord and at the other to the longitudinal truss-rod 28. The foregoing parts comprise what I term the "movable portion" of the truck structure, only some of the details thereof are immaterial. As has been before stated, the upper chord is extended outwardly from the axles to a more than ordinary degree, and this is intended for the purpose of giving a firm bottom for the car-body and a greater carrying capacity for the truck. It is therefore clear that more than the ordinary load is intended to be carried on this structure, and for this reason more than ordinary devices for spring supporting the car-body are necessary. To this end I supplement the axle-box springs by placing elliptical springs of slower action between the extended portions or sections of the side beams and upper chord and so arrange them in respect to each other that the elliptical springs will not come into play until after the axle-box springs have begun to compress, and the action of the spirals in lifting the car-body is continued after the elliptical springs have ceased to act. The devices which secure the elliptical springs between the side beams and the upper chord are devised to permit one end of the upper chord to approach
29 the side beams and the other end to be elevated, as will occur in the act of oscillation, one set of elliptical springs being compressed while the other remains in its normal condition.

Near the outer ends of the sections 13 14 of the side beams I locate straps 31 32, in which the elliptical springs 33 34′ (constructed in any desired manner) are secured. The construction of the straps is best seen in Fig. 3 in section. They are preferably composite, as shown, being formed of two saddles 34 35, one straddling the side beams and upon which the spring 34′ rests, the other being secured to the lower saddle and straddling the spring. The lower saddle 35 has legs 36, by means of which it is secured to the side beams by the bolts 37. It also has projections 38 and a flat top 39, and upon this flat top the elliptical springs rest. The upper saddle comprises the walls 40, top 41, and lugs 42, the lugs 42 being secured to the lugs 38 of the lower saddles by means of the bolts 43. A plate may be inserted between the top of the upper saddle to rigidly secure the spring in place.

From the foregoing structure it will be seen that the springs are rigidly secured to the side beams. They, however, are not secured rigidly to the upper chord, so that any upward movement of it will not affect them. The upper chord, however, is provided with means for retaining the upper half of the springs perpendicular to the side beams.

Secured to the upper chord preferably, upon one of the extended ends 20, is a cap 45, having the downwardly-extending legs 46.

The cap is interiorly chambered, so as to permit the elliptical spring 34′ to move within it, the legs 46 acting to keep the said spring perpendicular, while space is left between the inner top portion of the cap and the top of the spring to permit the upper chord to be depressed some distance before the cap begins to depress the elliptical spring. A plate 47 is attached to the top of the spring to prevent the cap wearing on the spring at this point.

Under conditions which prevail in trucks of this structure it is very important that the extended ends of the side beams be properly braced in order to sustain the heavy load carried upon them. This I accomplish in the following manner: The side beams are provided with lugs 48 near to the end thereof, and the saddles 6 and 7 are provided with outwardly-extending lugs 49 on the inner and outer plates of the saddles. These lugs support the longitudinal and downwardly-extending brace 50, which at its ends are secured to the lugs 48 on the side beams, and which is preferably provided with a turnbuckle 51, located between the said lugs. I do not limit myself to the use of the two braces on each side, as one may be found to be sufficient. It will be seen that this method of bracing gives a greater carrying capacity to the ends of the side beams, permitting them to carry great loads without fracturing the saddles, upon which in this case a considerable portion of the strain would come, when by reason of excessive loading of the car body, and consequent depression of the springs, a portion of this action would be taken on the springs supported on the ends of the side beams. When the excessive loading is not present, the springs on the ends of the side beams act as buffers, the ordinary action of the car-body on the truck being taken up by *by* the spiral springs.

The brace 50 can be very advantageously used when what is known as a "gearless motor" is used. In this style of motor the armature is secured directly upon the axle and the body of the motor extends out from the axle, sometimes on either side, but usually on both. When it extends outwardly, the weight of the same can be carried on the extended sections of the side beams, the brace then coming into play to strengthen them and relieve the axle-box saddles and the like from the excess strain.

In case it is not found desirable or for the purpose of cheapening the structure or for any other reason the upper chord could be omitted and the spring-plates 21 22, truss-rod 30, caps 45, and spring-posts could be secured to the sills or frame of the car-body without departing from the nature of my invention.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

1. In a motor-truck, the combination, with a stationary frame supported upon the running-gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and elliptical springs located between the extended sections of the said rigid frame and the movable frame, substantially as described.

2. In a truck, a spring-supporting frame supported upon the run-

ning-gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, substantially as described.

3. In a truck, a stationary frame supported upon the running-gear of said truck having sections extending outwardly from the axles, a movable frame carried by said truck, springs located between the stationary and movable frames and between the extended sections of both frames, and a brace for said extended sections of the stationary frame, secured to said extended sections and supported upon the running-gear of the truck, substantially as described.

4. In a truck, a stationary frame supported on its running-gear by saddles and having sections extending outwardly from the axles, a movable frame with extending sections, springs located between the stationary and movable frames and between their extended sections, and a brace for said extended sections of the stationary frame, secured to such sections and supported upon the said saddles, substantially as described.

5. In a truck, a stationary frame having sections extending outwardly from the axles, saddles secured to stationary frame and supported on the axle boxes, a movable frame having outwardly-extending sections, spiral springs located between the saddles and the movable frame, elliptical springs located between the movable frame and the extended sections of the stationary frame, and a brace for said extended sections, supported upon the saddles, the ends of which are secured to said extended sections, substantially as described.

6. A spring-supporting frame for a truck, comprising the saddles adapted to straddle the axle-boxes, longitudinally-extending beams extending between and secured to said saddles, additional beams secured to and extending outwardly from said saddles, and a brace supported upon said saddles and secured at its outer ends to the outwardly-extending beams, substantially as described.

7. A spring-supporting frame for a truck, comprising the saddles 6 and 7, having projections for supporting the truck-springs, outwardly-extending lugs 49 on the saddles, central sections 12 of the side beams, secured to the saddles, outwardly-extending sections 13 14 of the side beams, secured to the said saddles, cross-bars 15 16, uniting the ends of the side-beam sections, lugs 48 on the sections 13 14 of the side beams, a brace 50, secured to said lugs 48 and extending over the lugs 49 on the saddles, and a turnbuckle 51 for tightening said brace, substantially as described.

8. In a truck, a spring-supporting frame supported upon the running-gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, and braces for the extended ends of the spring-supporting frame, secured thereto and resting on the saddles, substantially as described.

9. In a truck, the combination of two frames, one stationary and supported upon the running-gear, the other movable, and a plurality of springs located between the stationary and movable frames, some of said series being adapted to be compressed by the downward movement of said movable frame subsequent to the compression of other of the series, substantially as described.

10. In a truck, the combination of two frames, one stationary and supported upon the running-gear of the truck, the other adapted to be moved toward said stationary frame, springs located between the ends of both frames, and springs otherwise disposed between the two frames, the end springs being adapted to be compressed subsequent to the compression of the other springs, substantially as described.

11. In a truck, a stationary spring-supporting frame having at its ends elliptical springs rigidly secured thereto, in combination with a movable frame supported by springs other than said elliptical springs, said movable frame being provided with devices for engaging said elliptical springs, the elliptical springs being adapted to be brought into action subsequent to the springs supporting the movable frame, substantially as described.

12. In a truck, a spring-supporting stationary frame mounted on the running-gear of said truck, said frame being composed of a plurality of bars contiguously disposed, a saddle secured to the outer sections of said bars, an elliptical spring the lower section of which rests upon said saddle, and a second saddle disposed over the first and the spring and secured to the first saddle, a movable frame and a spring supported upon the stationary frame and having devices for guiding the upper section of the elliptical spring, substantially as described.

13. In a truck, the combination of two frames, the one stationary and supported upon the running-gear, the other movable, said stationary frame having the contiguously-disposed beams 14, a saddle 35, closed at the top and having legs 36 secured to the beams 14 and projections 38, a second saddle closed at the top and secured to the projections 38, an elliptical spring 34′, held between the two saddles, and a cap 45, having downwardly-extending legs 46 secured to the movable frame, the ends of which engage the upper section of said elliptical spring, substantially as described.

14. A truck having running-gear and a frame, and spiral springs for supporting the car-body, supplemented by elliptical springs adapted to coact therewith, the spirals being adapted to be compressed prior to the ellipticals, substantially as described.

15. A truck having side beams disposed about the axle-boxes and a brace extending between the axle-boxes and secured to the side beams, substantially as described.

16. A truck having side beams disposed about the axle-boxes and a brace supported upon or above the axle-boxes and secured to the side beams, substantially as described.

17. The upper chord having the depending cap 45, with downwardly-extending legs 46, and elliptical springs held on the side beams, adapted to move in said cap, substantially as described.

18. The saddle 35, having the legs 36 secured to the side beams

and projections 38, and the saddle 34, provided with projections 42, secured to like parts on the saddle 35, substantially as described.

19. The side beams on the axle-boxes, axle-box saddles 6 7, having the lugs or projections 49 above the axle-boxes, and a brace 31 supported thereon and secured to the side beams, substantially as described.

20. A truck having side beams disposed about the axle-boxes, a brace supported upon or above the axle-boxes, extending between them and secured thereto, and means for tightening the said brace, substantially as described.

21. The side beams intermitted about the axle-boxes, saddles for supporting the side beams on the axle-boxes, and a brace supported on the saddles above the side beams and secured to the side beams, substantially as described.

22. The saddles 6 7, supported on the axle-boxes, lugs 49 on the saddles, side-beam sections 12 13 14, secured to the saddles, and a brace 50, supported on the lugs 49 and secured to the sections 13 14 of the side beams, substantially as described.

23. A frame for a truck, comprising the saddles 6 7, having projections for supporting the truck-springs, lugs 49 on the saddles, central side-beam sections 12, secured to the saddles, outwardly-extending side-beam sections 13 14, secured to the saddles, and a brace 50, secured to the sections 13 14 and supported on the lugs 49 of the saddles, substantially as described.

24. A frame for a truck, comprising the saddles 6 7, having projections for supporting the truck-springs, lugs 49 on the saddles, central side-beam sections 12, secured to the saddles, outwardly-extending side-beam sections 13 14, secured to the saddles, a brace 50, secured to the side-beam sections 13 14 and supported on the lugs 49, and a turnbuckle 51 for tightening said brace, substantially as described.

25. The saddles 6 7, straddling the axle-boxes and open below the same, lugs 49 on the saddles, side-beam sections 12 13 14, secured to the saddles, and a brace 50, secured to the side-beam sections 13 14 and supported on the lugs 49, substantially as described.

26. The saddle 35, secured to the side beams, the saddle 40, secured to the saddle 35, and an upwardly-extending elliptical spring held between the two saddles, substantially as described.

27. In a truck, a stationary spring-supporting frame mounted on the running-gear of said truck, having outwardly-extending sections and elliptical springs secured to the stationary frame, and a movable-frame spring supported upon the said stationary frame, having a device for guiding the upper portion of the elliptical springs, substantially as described.

28. Side beams supported upon the running-gear and extending past the same and a brace detachably supported upon the running-gear or a portion thereof and secured to the extended ends to the side beams, substantially as described.

Signed at the city and State of New York this 13th day of June, 1891.

GEORGE MARTIN BRILL.

Witnesses:
R. S. REED.
L. R. RANDOLF.

32 478,218. GEORGE MARTIN BRILL, Philadelphia, Pa.

Improvement in Car-trucks.

Patent dated July 5, 1892. Disclaimer filed October 13, 1900, by John A. Brill, assignee, and the J. G. Brill Company, licensee.

Disclaimer in letters patent No. 478,218.

Enter their disclaimer—

"Of claim seventeen (17) thereof, which is in the following words:

"'17. The upper chord having the depending cap 45, with downwardly-extending legs 46, and elliptical springs held on the side beams, adapted to move in said cap, substantially as described.'" (Official Gazette, October 23, 1900.)

Correction in letters patent No. 478,218.

It is hereby certified that in letters patent No. 478,218, granted July 5, 1892, upon the application of George Martin Brill, of Philadelphia, Pennsylvania, for an improvement in "Car-trucks," an error appears in the printed specification requiring correction, as follows: In line 90, page 4, the word and letter "and a" should *should* be stricken out; and that the said letters patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 5th day of April, A. D., 1898.

[SEAL.] WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:
C. H. DUELL,
Commissioner of Patents.

35 UNITED STATES PATENT OFFICE.

BENJAMIN F. MANIER, of Troy, New York.

Car-truck.

Specification forming part of Letters Patent No. 409,993, dated August 27, 1889.

Application filed June 21, 1889. Serial No. 315,075. (No model.)

To all whom it may concern:

Be it known that I, Benjamin F. Manier, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful improvements in car-trucks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

(Here follow diagrams marked pp. 33 and 34.)

Figure 1 is a side view of my improved truck for electric motors and tram or street cars. Fig. 2 is a plan view of the same. Fig. 3 is a detail sectional side view showing a modification of springs. Fig. 4 is a detail vertical sectional view through a portion of the truck on line *x x*, Fig. 2.

This invention is an improvement in trucks for street or tram cars, and is especially designed for use with electric motors. Its objects are to so construct the truck that open or summer car bodies or closed "box" bodies can be readily mounted thereon interchangeably, and wherein the body will be spring-cushioned on the truck independently of the cushioned mountings of the truck on the axles, the body-springs being exterior or outside of the car-axles at the ends of the truck, so that the rocking or oscillating movement of the body usual in ordinary cars will be obviated. Further objects are to so construct the truck that the motors will be readily accessible, and will be partially equipoised on the truck; and to these ends the invention consists in the novel construction and arrangement of parts of and in the truck, as will be hereinafter clearly described and claimed.

Referring by letters to the drawings, A designates the truck-frame, rectangular in plan, and composed of the compound upper and lower side bars A′ A^2, suitably connected, and the transverse connecting-bars D D and E. Each compound bar A′ A^2 consists of two flat metal bars set on edge and secured together by lateral bolts, as shown, the bars being separated, however, by interposed blocks or the ends of vertical uprights B B, which are securely bolted to the bars A′ A^2, as shown, and keep said bars in proper relative position. The compound bars as thus constructed are light and very strong. By set-

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Peckham & Co
p. 33

(No Model.) 2 Sheets—Sheet 1.

B. F. MANIER.

CAR TRUCK.

No. 409,993. Patented Aug. 27, 1889.

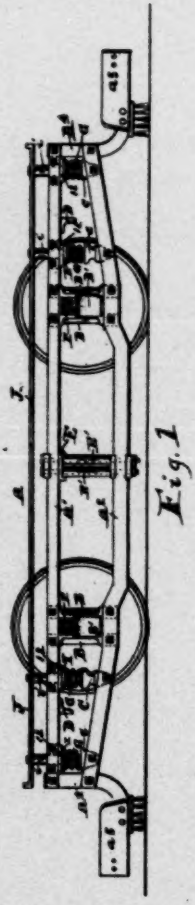

Fig. 1.

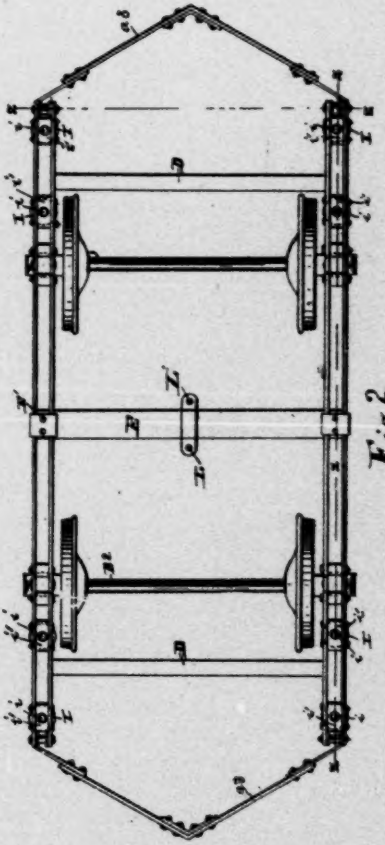

Fig. 2.

Witnesses:
P. L. Brooks
A. E. Savell.

Inventor:
B. F. Manier
By his Attorney T. H. Alvord

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Bill
vs.
Pittsburgh
} p. 34

(No Model.) 2 Sheets—Sheet 2.

B. F. MANIER.

CAR TRUCK.

No. 409,993. Patented Aug. 27, 1889.

Fig. 4.

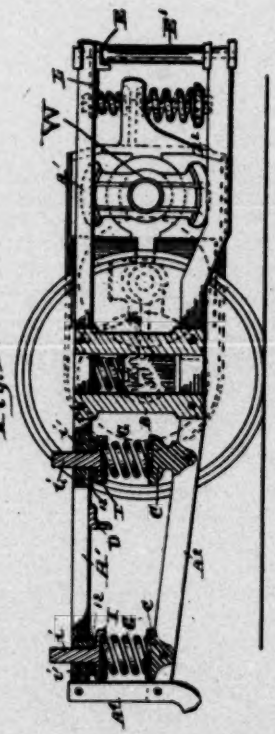
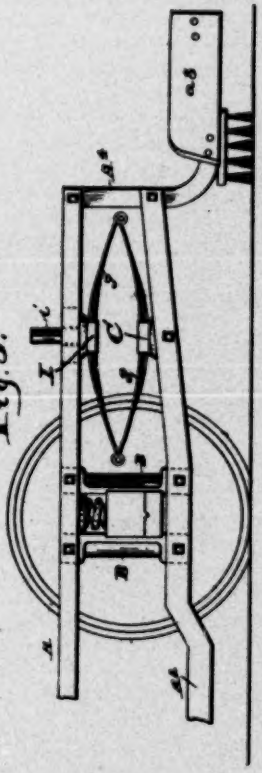


Fig. 3.



Witnesses:
P. L. Brooks.
A. E. Towell.

Inventor
B. F. Manier
By his Attorney. T. N. Alexander

ting the flat metal bars edgewise they will withstand and support a great vertical strain or weight superimposed thereon, and by arranging them in pairs and staying them together laterally by the connecting bolts, as described, lateral flexing thereof is prevented. The upper bar A′ is straight, but the lower bar A^2 is depressed at center between the pairs of uprights B B, said uprights forming guides, between which move the journal-boxes B′ of the car-axles B^2, which are of ordinary construction. There are two axles to each truck, which are of the four-wheel class. F F designate coiled springs interposed between the boxes B′ and top bars A′, by which the truck is spring-cushioned and suspended on the axles. The bars D D are made of L angle-iron and bar E of U angle-iron, and all are securely bolted to the upper bars A′. The ends of bars A′ A^2 are connected by vertical pieces A^4, and on the ends of the truck may be mounted fenders a^3, as shown.

On the lower bar A^2, between the uprights B B and the ends of the truck, are mounted stirrup-blocks C C, on which are supported springs, and upon these springs rest caps I I, having upstanding shanks *i*, that rise between the members of bar A′ and project above said bar. The shanks *i* preferably move through openings in blocks *i*′, secured to bars A′, and are guided thereby. Upon said shanks *i* are supported horizontal bars J, which are bolted thereto, and to said bars J the car-bodies can be readily fastened in any convenient manner, and car-bodies of different styles can thus be readily mounted on the same truck and as readily removed simply by unfastening bars J from the body or truck, as is obvious. Preferably I employ spiral springs G, as shown in Fig. 1, for supporting caps I; but, if desired, the elliptic springs *g* could be employed, as shown in Fig. 3; or other forms of springs may be used, as found convenient and desirable, the particular form of spring not forming part of present invention.

It will be observed that if a car be mounted on bars J, as described, the weight thereof is transferred to the ends of the truck
36 exterior to or beyond the axles, and consequently nearly beneath the ends of the body, and thereby the tendency of the body to rock or tilt is overcome. This oscillation of the body, which is very unpleasant, is noticeable in cars mounted on trucks wherein the body-springs are on both sides of the axles and near the center of the truck and body. This mounting of the body-springs forward of the axles I consider a special feature of my truck. The bars A′ A^2 are connected at center by brace-bolts E′ E′. Bar E is midway between the axles and in the center of the truck, and the motor-armatures W are partly suspended thereon at points L L and partly on the axles. The weight of the motors bearing on the center of the truck is partially balanced by the weight of the body on the ends thereof, so that a smooth and steady riding of the truck is obtained, as the side frames thereof are about equally loaded between and forward of the axles. The movement of the body of the truck-frame is entirely independent of the movement of the truck-frames on the car-axles; but the weight of both car body and truck is transferred to the axles through springs F F, and thus a complete

spring-suspension of the body is obtained. The caps I I are preferably provided with cushioning-pads 12 12, to prevent jar and noise when the caps ride upward into contact with the under side of bar A′.

Having thus fully described my invention, I claim—

1. The combination, in a truck-frame, of the compound side bars A′ A^2, composed of flat metal bars arranged vertically edgewise in pairs, and bolted together substantially as described, and the vertical uprights connecting said bars and the transverse connecting-bars, substantially as specified.

2. The combination, in a truck, of the side frames composed of side bars A′ A^2, each consisting of two parallel flat metal bars set edgewise and connected substantially as described, the uprights B B, and the transverse connecting-bars D D and E, all substantially as and for the purpose set forth.

3. The combination of the truck-frame with the body-supporting springs and the vertically-movable caps I I, resting on said springs and carrying the body, all substantially as specified.

4. The combination of the side bars A′ A^2, the springs supported on bar A^2 exterior to the axles, the caps I, having shanks *i* playing through bar A′, and the bar F, supported on said shanks, substantially as specified.

5. The combination of the truck-frame composed of side bars A′ A^2, uprights B B, and the transverse connecting-bars D D and E, with the car-axles, boxes B′, and springs F F, all substantially as set forth.

6. The combination of the truck-frame having compound side bars A′ A^2 with the stirrup-blocks C, springs G, caps I, and bars F, all as and for the purpose set forth.

7. The combination of the truck-frame composed of side bars A′ A^2, the latter being depressed at center, the uprights B B, and transverse bars D D and E, and bolts E′, with the car-axle boxes playing between uprights B B, the springs F F, and the car-body-sustaining springs arranged on the truck exterior to the axles, substantially as and for the purposes set forth.

8. The herein-described truck, consisting of the side frames composed of compound bars A′ A^2, uprights B B, and the transverse braces D D and E, brace-bolts E′, the stirrup-blocks C C, springs thereon, the vertically-movable caps I, having shanks *i* playing through bar A′, and the body-bars J, all constructed and arranged as and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

BENJAMIN F. MANIER.

Witnesses:
JOHN TAYLOR.
E. A. STANLEY.

20808

Rail
Peckham Co
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(No Model.) 2 Sheets—Sheet 1.

E. PECKHAM.

CAR TRUCK.

No. 419,876. Patented Jan. 21, 1890.

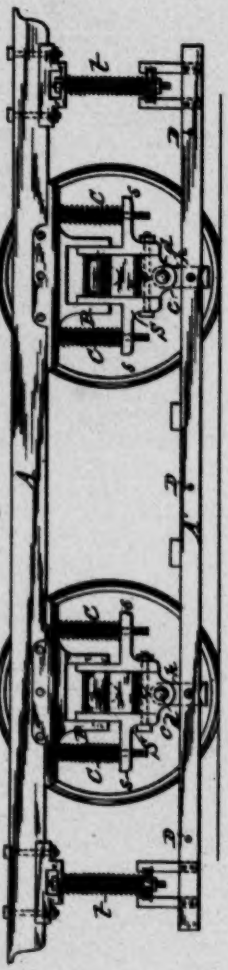


Fig. 1

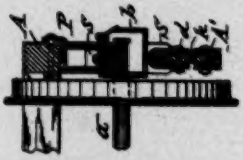


Fig. 3

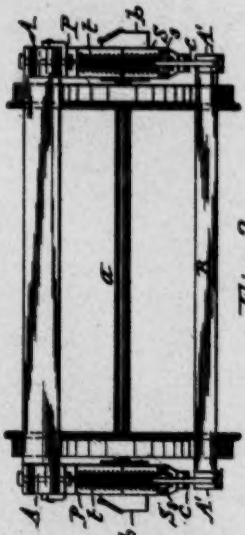


Fig. 2

WITNESSES:

J. J. Laass.

H. M. Seamans

INVENTOR

Edgar Peckham

BY

Church, Lacey & Bell

ATTORNEYS

No. VVV.
Built
Peckham
p. 38

(No Model.)

2 Sheets—Sheet 2.

E. PECKHAM.

CAR TRUCK.

No. 419,876.

Patented Jan. 21, 1890.

Fig. 6

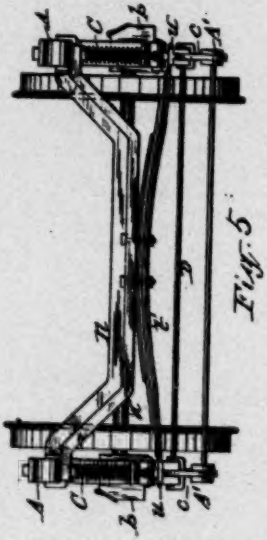


Fig. 5

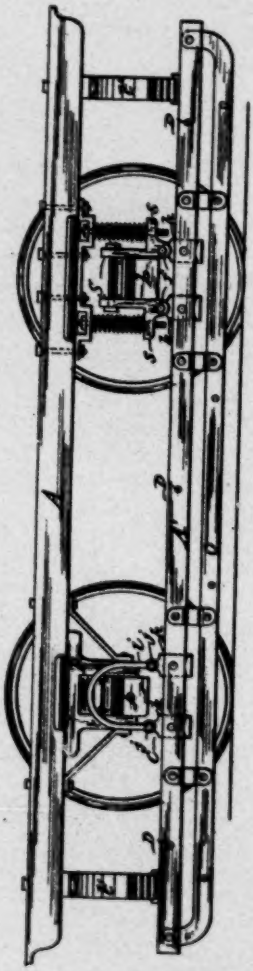


Fig. 4

WITNESSES:

J. J. Yaass.

H. M. Seamans

INVENTOR

Edgar Peckham

BY

Duell, Lawrence & Bell

ATTORNEYS

39 UNITED STATES PATENT OFFICE.

EDGAR PECKHAM, of New York, N. Y.

Car-truck.

Specification forming part of Letters Patent No. 419,876, dated January 21, 1890.

Application filed September 2, 1889. Serial No. 322,646. (No model.)

To all whom it may concern:

Be it known that I, Edgar Peckham, of New York, in the county of New York, in the State of New York, have invented new and useful improvements in car-trucks, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in a novel construction of a car-truck designed to afford spring-supports under the end portions of the car-body as well as at the axles, and thus support said body nearly throughout its length and also obviate in a great measure the vertical oscillation of the same when moving over an undulating track.

The invention is fully illustrated in the annexed drawings, in which—

(Here follow diagrams marked pp. 37 & 38.)

Figure 1 is a side elevation of my improved car-truck. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical transverse section through the axle and coupling. Fig. 4 is a side elevation of a modification of my improved car-truck. Fig. 5 is an end elevation of the same, and Fig. 6 is a side view of a further modification of the means for suspending the longitudinal beams of the truck from the axles.

Similar letters of reference indicate corresponding parts.

A and A′ represent, respectively, the upper and lower longitudinal beams of the truck. The upper beams A may be a portion of the car-body. Said latter beams are supported upon the axles *a a* by saddles S S, mounted on the journal-boxes *b b*, and, if desired, they may be guided vertically between the usual jaws of pedestals P P, secured to the upper beams A A. I prefer to form the said saddles with arms *s s*, projecting horizontally from the front and rear sides thereof, and upon these arms I mount springs C C, which support the beams A A over opposite sides of the axles. The lower beams A′ A′ are preferably each formed of two stout steel bars placed edgewise vertically side by side with a space between them, and filling-blocks interposed at suitable intervals and firmly united by bolts or rivets passing through the bar and filling-blocks in the usual and well-known manner. Cross-beams B B and tie-rods D D

fasten the two beams A′ A′ to each other. These beams, as well as the upper beams A A, are extended so as to bring their end portions under the end portions of the car-body, and the lower beams A′ A′, I support under the axles *a a* by pivoted couplings *c c*, hung on the journal-boxes or saddles riding on the axles, the pivots of the couplings being parallel with the axles, and thus allowing the said beams a limited longitudinal play.

I do not limit myself to any specific construction of the said couplings, inasmuch as it is susceptible of many modifications without departing from the spirit of my invention.

Several forms of the said couplings are illustrated in the annexed drawings.

Fig 1 shows the coupling of the form of a strap *h*, pivotally connected to the beam A′ and suspended from a pin *d*, which is parallel with the axle and passes through a hanger *e*, pivoted to the lower ends of the saddle at right angles to the axle, which hanger permits a lateral movement of the beam A′. Fig. 4 shows two forms of the aforesaid couplings. At the right-hand portion of said figure the saddle S is provided with two eyes *f f*, and from pins inserted in said eyes are suspended two straps *h h*, pivotally connected to the beam A′. The left-hand portion of Fig. 4 shows the coupling *c* as consisting of a yoke *i*, hung from the top of the journal-box *b* and terminating with two eyes *j j*, to which are connected the straps *h h*.

Fig. 6 of the drawings shows the coupling *c* of the form of a link *l*, suspended from the before-described hanger *e* and having its lower end coupled to the strap *h*, carrying the beam A′.

Between the end portions of the upper and lower beams A A′, I interpose suitable springs, which may be either of the spiral species, as shown at *t t*, or of the so-called "semi-elliptic" form, as shown at *t′*, in Figs. 4 and 5 of the drawings, which latter form of spring is disposed crosswise of the truck and rests with its ends in suitable shoes *u u*, secured to the top of the beams A′ A′, and upon the central portion of the spring is mounted a truss *n*, which is extended across the under side of car-body and firmly secured thereto.

40 The beams A′ A′, I preferably stiffen longitudinally by a suitable truss O, extending the length thereof, as shown in Fig. 4 of the drawings.

Having described my invention, what I claim as new, and desire to secure by letters patent, is—

1. A car-truck comprising saddles mounted on the axles, longitudinal beams supported under the axles by pivoted couplings hung on said saddles, and springs interposed between said beams and car-body, substantially as set forth and shown.

2. A car-truck comprising saddles mounted on the axles, longitudinal beams supported under the axles by pivoted couplings hung on said saddles, and the ends of the beams extending under the end portions of the car-body, and springs interposed between the aforesaid beams and car-body at the central and end portions thereof, substantially as described and shown.

3. A car-truck comprising longitudinal beams under the axles and supported thereon, longitudinal beams above the axles and

movable toward and from the lower beams, pedestals on said movable upper beams embracing the journal-boxes, and springs interposed between said beams, substantially as described and shown.

4. In combination with the car-axles, longitudinal beams above the axles and supported elastically vertically upon the same, saddles hung on the axles, longitudinal beams suspended from said saddles, and springs interposed between the said elastically-supported beams and suspended beams, as set forth.

5. In combination with the car-axles, longitudinal beams above the axles and supported elastically vertically upon the same, saddles hung on the axles, longitudinal beams suspended from said saddles by pivoted couplings, and springs interposed between the said upper and lower beams, as set forth.

6. In combination with the car-axles, longitudinal beams above the axles and supported elastically vertically upon the same, saddles hung on the axles, hangers pivoted to the saddles at right angles to the axles, longitudinal beams connected to said hangers, and springs interposed between the said upper and lower longitudinal beams, as set forth.

7. In combination with the car-axles, longitudinal beams above the axles and supported elastically vertically upon the same, saddles hung on the axles, hangers pivoted to the saddles at right angles to the axles, longitudinal beams connected to the hangers by hinge-joints parallel with the axles, and springs interposed between the said upper and lower longitudinal beams, substantially as described and shown.

8. In combination with the car-axles and saddles hung thereon, a truck-frame having longitudinal beams above the axle and elastically supported thereon and extending forward and rearward therefrom, saddles hung on the axles, hangers pivoted to the saddles at right angles to the axles, longitudinal beams of the length of the aforesaid upper beams suspended from the hangers by pivotal connections axially parallel with the axles, and springs interposed between the aforesaid upper and lower longitudinal beams at the end portions thereof, substantially as described and shown.

9. The combination, with the longitudinal beam A′, of a truss extending lengthwise thereof and secured thereto to stiffen the same, as set forth.

In testimony whereof I have hereunto signed my name this 24th day of August, 1889.

EDGAR PECKHAM. [L. S.]

Witnesses:
FRANK H. EDMUNDS.
EMANUEL BOTSCHON.

41 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS.

STATE OF VIRGINIA, *County of Bath*, } ss:

John A. Brill, being duly sworn according to law, deposes and says:

I am one of the complainants in the above-entitled case. I have read the bill of complaint therein. The facts therein are true, except as to those matters which are therein averred upon information and belief, and as to those matters, I verily believe them to be true.

I have been actively engaged in the building of street railway cars since 1870, with the successive firms of J. G. Brill & Son, and J. G. Brill and Company, and with the J. G. Brill Company, the successor to said firms; with the latter since its organization in 1887. I have been very closely engaged in the manufacturing parts of the business and I have frequently visited the various railway companies and have come into contact constantly with the officials of street railway companies all over the United States. I have been very familiar with the rise and development of the art of
42 propelling cars by electricity. The independent rigid truck now in universal use was invented and introduced by me. I have made a large number of inventions in that art and have taken out a large number of letters patent of the United States thereupon.

The introduction of independent trucks under street railway cars in this country began in 1887. Such trucks took the place of the old horse-car running gear. They were not at first accepted with entire favor by the street railway officers, and their introduction was rather gradual. As electricity gradually came into use, longer car bodies began to be required by the railway companies. The old horse-car bodies were not over sixteen feet in length, and these were at first utilized in changing the equipments to electricity. When new electric cars were brought into use, the car bodies were from 18 to 22 feet in length. It was not possible to increase the wheel base of the truck, that is, the distance between wheel centres, because trucks with long wheel bases would not be able to pass around the short radius curves in narrow city streets. The old horse-car bodies had a considerable overhang at each end, and the longer car bodies introduced on electric cars had a still greater overhang. This overhang at each end of the car body with 16-foot car bodies as well as with the longer car bodies, resulted in very serious oscillations of the car bodies when in motion. This oscillation was in the nature of a galloping motion, the car becoming alternately depressed and raised at either end. The joints between the rails were the chief cause of it, and it was aggravated when the rails were laid with the

joints opposite to each other. The rails were formerly laid with a slight space between the ends. These ends would become more or less depressed by wear, and a car in passing rapidly over the depression, got this rocking or galloping motion. It was aggravated when the tracks got out of repair, and was also greatly increased
43 when the car was run at higher rates of speed. Again, the galloping motion of the car pounded the rails at the joints, and made the track conditions still more likely to produce the galloping motion than before. This galloping motion was also brought about where there were sudden changes of the grade.

The effect of it in the operation of the road was very serious. The old style of tracks, with the rails laid on parallel stringers, had a life of hardly more than three years under these conditions, owing to the pounding of the single-truck cars. It became necessary to relay the rails with from 90 to 110 lb. rails to the yard, whereas on steam railroads the average weight of the rails was from 50 to 100 pounds to the yard. The effect on the truck of the oscillation or galloping was to bring about strains upon, and to loosen the component parts of, the truck and decrease its life and service; and the same was true of the car bodies. Oscillation was also a source of great discomfort to the passengers, and on open cars there was an added element of danger to the passengers, it being well known that there have been instances where passengers have been thrown from their seats by the motion of the car. To make electric propulsion profitable, it was necessary to increase the speed of the cars in order to increase their daily mileage. The increase of speed, as above stated, greatly increased the oscillation and made it still more dangerous. When a car began to oscillate, it was necessary to reduce the speed in order to steady the car. There was also a constant danger of derailment in running a car while under this galloping motion. I have heard of very serious accidents happening by the derailment of cars caused by oscillation, attended with considerable loss of life. I have also heard of an instance where, under poor track conditions, it was found necessary to stop the running of cars entirely on account of this tendency. This tendency to excessive oscillation existed with the use old styles of trucks and before the introduction of the truck of the patent in suit.

44 Various and constant attempts were made by the truck-builders and the street railway companies to devise some style of truck which would lessen or obviate such oscillation, which was recognized by the electric railway companies at that time and for several years as one of the most serious difficulties which confronted the profitable operation of street cars by electricity. One attempt was made by having an extended spring base and a plunger or rod entering into a box-like compartment on this extended base, in which compartment there was a spiral spring or cushion which would be compressed when the car attained a rocking or oscillating motion. Another device consisted of additional spiral springs supported on the extended ends of the side frames. A third consisted of extending the spring base and using the spiral springs thereon of different sizes or capacities. Still another

had the usual side beams with outwardly extended ends and two spiral springs on each of these outwardly extended ends, and no spiral springs within the wheel base; and another was the Manier device made under the patent to Manier. All of the above were tried experimentally prior to about 1893.

In an advertising supplement to the Street Railway Journal of October, 1889, there is an advertisement which purports to be, and which I believe was, inserted therein by the Peckham Street Car Wheel & Axle Company, of which I believe Edgar Peckham, defendant herein, was president, and which I believe was the predecessor in the truck business of The Peckham Motor Truck & Wheel Company, defendant. I annex a copy of one page of this advertisement, marked "Exhibit A." In the said journal, at page 291, being the page to which reference is made in said advertisement, I find a comment upon the said style of truck, of which the following is a copy, and annexed to the same and on the same page therewith is a cut of a truck identical with the truck shown in the above-mentioned advertising supplement, marked "Exhibit A."

45 *"An Improved Truck for Street Cars.*

"As the weight and speed of street cars increase, owing to the change from horse power to mechanical traction, and as the cars themselves take the impression of the new motive forces, and new and different types are introduced, in many cases lengthened considerably beyond the old-time limit of sixteen feet, the question arises of how to prevent the rocking or oscillation which, through an eccentric wheel, perhaps, or an inequality in the track, too elastic springs or crowding of passengers towards one end, has always been more or less objectionable. Plainly the remedy is to use double trucks, or to extend the wheel base in order to give the cars a firmer footing on the rails; but this latter is for many reasons impracticable, as a greater wheel base than six feet, if it does not actually increase the traction, causes trouble on the curves; while as to double trucks, objections are found in many cases which so far have interfered with their more general introduction. But since to recognize the difficulty is, for the practical man, usually but a step apart from surmounting it, we are not surprised to be able to show in the cut herewith what appears to be an admirable solution of the problem. The illustration in Fig. 1 represents a new truck gotton up by Mr. E. Peckham, president of the Peckham Street Car Wheel & Axle Company, of New York, a study of which will reveal that while the wheel base is not extended, the exact effect which would result if the axles were widely separated is fully attained, by extending the frame of the truck some feet beyond the axles, and instead of having the springs placed as usual in the pedestals, one on each side of the car is located at each extremity of the frame, and the others at points between the axles equidistant from the outer springs. This arrangement, as will at once be seen, must entirely prevent any rocking motion, and the car ought to ride as smoothly as any

steam railway passenger coach on its double trucks. In this
46 truck as in Mr. Peckham's other type of truck which was illustrated in our last issue, the motor may be suspended in any manner desired. An improved hanger is provided, however, as shown in Fig. 2, containing springs or cushions and a ball socket, which permit of as much flexibility as is needed to guard the motor against injury from the jars and shocks which the car may receive on curves and switches and from any irregularity of the track."

Trucks of this construction were not successful in preventing or lessening oscillation in electric street cars, and were a failure in that respect, and but few if any of them were ever put into use and that their manufacture was soon thereafter given up by said company.

About 1889, 1890 and 1891, I believe that The Peckham Motor Truck and Wheel Company, defendant, or its predecessor, were engaged in making and selling trucks for four-wheel cars, having only spiral springs mounted on the side beams. Some of these trucks had a spiral spring on each side of each axle box and adjacent thereto, making in all four spiral springs on each side; others of them had the said four spiral springs, and also an additional spiral spring supported on the outward or end extension of the side beams.

None of these various devices above mentioned and none of the others tried during that period were successful. They did not reduce oscillation on four-wheel electric cars to a sufficient extent to be practical and to enable the electric railway companies to operate their cars at the high speed required for the successful and profitable conduct of the business. Companies were compelled to confine their cars to slower rates of speed, which caused a decrease of the profits of operation. High speed, with long cars, are the chief factors of the profitable operation of electrically *com*pelled street cars. Operating sixteen-foot cars, or even long cars, by electricity at the ordinary speed of horse cars would hardly be a profitable business.

47 In May, 1889, J. G. Brill Company, of which I was then and have ever since been an officer, received an order for trucks for the Wilmington Railway Company, at Wilmington, Delaware. In filling this order, Mr. G. Martin Brill, then and ever since the president of the company, with whom I was in daily conference in regard to its manufacturing business, explained to me an improvement which he had invented for the prevention of oscillation on single-truck street railway cars. He explained his said invention to me at the time as consisting of extending the spring base, *i. e.*, the two side beams, outwardly, and placing elliptic springs on each side of the said extensions in addition to the two spiral springs supported on the side beams, one on each side of each thereof, and adjacent to each of the axle boxes, so that the truck should have four spiral and two elliptic springs on each side. For a number of months prior to that time he had talked to me about this invention and on several occasions he had, previously to then, made rough sketches of his invention and shown them to me, which together

with his explanation of them, were entirely sufficient to make his said invention entirely clear to me. From what he said to me I understood his invention fully; it was the invention shown and described in the letters patent afterwards issued therefor, and now here in suit.

As the placing of this improvement on this Wilmington order for trucks would have been the cause of increased expense of manufacture, and as the order was for the old Brill No. 7 form of truck, the improvement was not placed on those trucks. We received the order for those trucks on June 6th, 1889. This was a confirmation of our previous offer to build four electric cars and trucks for that company, but prior to that time, for a number of weeks, there had been conferences with the officers of the Wilmington road in relation to this order and my recollection is that we received the verbal order for these cars and trucks some time in May, 1889, and
48 began work on them during that month. The date at which Mr. G. M. Brill explained his said invention to me was about the month of May, 1889. Although I fully understood the said invention as explained and illustrated to me by G. M. Brill, I did not appreciate its great value nor recognize that it would be the best and most practicable and the only possible solution of the problem of the prevention of oscillation in the operation of four-wheel electric cars. Furthermore, the increased cost of about $25 per truck which the said invention made necessary was also, at that time, an additional objection.

The first trucks upon which the improvement of G. M. Brill's was placed, was an order for cars that the J. G. Brill Company received from the Broadway and Newburgh R. R. Co., of Cleveland, Ohio, This order was received in November, 1890. It was taken by G. M. Brill himself at Cleveland. It was for ten trucks and car bodies.

On November 14th, 1890, Mr. G. M. Brill, who was then in Cleveland negotiating for the order, wrote me a letter in regard to it, of which the following is a copy:—

"Weddell house; Charles Wesley,

CLEVELAND, O., *Nov.* 14, 1890.

John A. Brill.

DEAR JOHN: I have had an interview with Mr. Andrews today and in conversation he wants long cars and is somewhat doubtful about using longer than 7 ft. wheel base. I have told him, we could use 8 ft. and leave lips off box and he could use the 21-ft. cars all right, he will see again this afternoon *again* and then we will go over the ground.

On the back of this letter was an ink sketch and certain figures, of which the blue print attached to this affidavit and marked
49 "Exhibit B," is a correct reproduction. On the same day, or the next day, Mr. G. M. Brill also wrote to the treasurer of the company, Mr. James Rawle, a letter of which the following is a true copy:—

"Weddell house, Charles Wesley.

CLEVELAND, O., 189–.

Mr. Rawle:

Tell H. Lycett to see Silversmith and see that they get material for 10 cars 21 long same style of post as the last 8 cars we build, Broadway and Newburgh the size of frame, make material, same as the 21 cars we build Chicago size of glass in deck 1½" higher than their last cars.

Trucks our No. 7 Standard with wheel base 7 ft. 6" extra springs on outside. I will arrange when I get home. Andrews proposes to use, 3⅞" axles and I must get up yoke to take in box of 3½" journal. I have written John about this. I will not use the elliptic alone for I know it will not work with loads unequal so I will have yoke made like this.

The elliptic will prevent pitching and take up extra loads."

The blue print attached to this affidavit, marked "Exhibit C," is a true copy of the ink sketch upon the said letter.

Both the said letters were received in due course of mail by the J. G. Brill Company, and the order was booked and the said letters and sketches were placed in the hands of the draftsman of the company, for the purpose of preparing drawings for the manufacture of said cars. I saw them both at that time. Both of the said original letters, with the ink sketches or drawings thereon, respectively were produced and offered in evidence as part of the proofs in the case of John A. Brill against the Third Avenue Railway Company, now pending in the circuit court of the United States for the
50 southern district of New York. I am, therefore, unable to produce them.

The said draftsman of the J. G. Brill Company made a tracing or drawing from these two letters and sketches and completed the same on December 8th, 1890. The blue-print drawing attached to this affidavit and marked "Exhibit D," is a copy thereof. The original was offered in evidence in the last-mentioned proceedings, and I am now unable to produce it.

The trucks for the Broadway and Newburgh R. R. Company were thereupon manufactured in accordance with the design shown in the drawing, "Exhibit D," and were shipped to the railroad company about January, 1891, and, as I have been recently informed, have since been and were still in use there. I saw this last-mentioned drawing at the time it was made and can fix the date of it by the date which I now perceive in the copy which is written thereon in the handwriting of our draftsman, Walter S. Adams, with which I am familiar.

Between the date of the said Wilmington order and the date of this Broadway and Newburgh order, the former being May, 1889, and the latter November, 1890, I fully discussed this improvement on several occasions with G. M. Brill. The price of our former type of truck had been $250, and when we took the Broadway and Newburgh order and agreed to put on this improvement, we obtained from them $275 a truck, to cover the additional cost of manufacture.

This new type of truck proved to be entirely successful in over
coming oscillation and the J. G. Brill Company at once endeavore
to push its sales actively. Till the fall and winter of 1891, the
were not so successful in doing so. It was named, and has sinc
been known to the trade, as Brill "No. 13" truck.

At the convention of the Street Railway Association whic
was held in October, 1891, at Pittsburg, the J. G. Brill Com
51 pany exhibited a truck of this style, and at the same tim
had some of them in operation on one of the street railway
in Pittsburg, which were exhibited to the railway men attendin
the said convention. This was followed by a large number of sal
of the trucks to various street railway companies in various parts
the country. The J. G. Brill Company manufactured it to th
practical exclusion of its former types of trucks for four-wheel car
Since then, it has been copied by other truck manufacturers, an
street railway companies have recognized it as a necessity of the bus
ness and have almost universally adopted it. The type of truck of th
patent in suit has, since then, supplanted all other four-wheel truc
structures in the markets of the United States. I believe, from
very general knowledge of the trucks in use all over the Unite
States which I have acquired in my business, that fully ninety pe
cent. of all the trucks under four-wheel cars now in use in th
United States on all its street railways, are constructed in accor
ance with the invention described and claimed in the letters pate
in suit. Since the truck structure of the patent in suit became full
known to the trade, which was about 1891 or 1892, the J. G. Bri
Company has not had a single order for trucks of its old No. 7 typ
except for sprinkling cars and a few short body cars for special pu
poses. This No. 7 type was in general use prior to the introductio
of the truck of the patent in suit, and was constructed entirely wit
spiral springs supported on the side beams on either side and adj
cent to each of the axle boxes, but without any springs on extende
side beams.

Since about 1893, all the other truck-builders but one or two hav
been gradually driven by the demands of the trade to make an
sell trucks of the construction of the patent in suit to the practica
exclusion of the various older types formerly made and sol
by them.

52 Application for letters patent of the United States upon th
said invention was filed by George Martin Brill on June 2
1891, and the letters patent in suit thereupon were granted to hi
July 5, 1892, No. 478,218. I annex hereto a true copy of said lette
patent, marked "Exhibit E."

The said George Martin Brill, by two assignments dated respec
fully Dec. 3, 1894, and July 6, 1897, and duly recorded in the Pate
Office, granted and assigned to me all his interest in said lette
patent and all his rights of action thereunder. I annex hereto tru
copies of the said assignments and the same are marked "Exhib
F" and "G" respectively.

On or about July 10, 1897, I filed a bill of complaint in the circu
court of the United States for the southern district of New Yor

against the Third Avenue Railroad Company, a New York corporation, operating a street railway in the city of New York, setting forth the issue of said letters patent, No. 478,216, to George Martin Brill, and their assignment to me, and that the defendant therein had infringed upon my rights as the owner thereof, and praying an injunction and an account. The cause was instituted and carried on by me as a test cause in order to establish the validity of the letters patent here and there in suit, as against the Bemis Car Box Company which had built the trucks therein complained of and against all others who had infringed upon the same or threatened to do so. As also appears by the proofs taken therein, the Bemis Car Box Company undertook and conducted, and had complete control of, the entire defense of the said cause, and their counsel appeared of record on behalf of the defendant therein. The learned judge in its opinion in said cause, which is reported in 103 Fed. Rep. 289, held that said Bemis Car Box Company defended the said suit for the Third Avenue Railroad Company.

An answer was filed to the said bill setting forth that the defendant relied upon the following letters patent and printed
53 matter as meeting or limiting the claims of the letters patent in suit, and, in taking the proofs, defendant examined their expert witness in relation thereto or to certain thereof.

Ashenfelder, 93,945,
Baker, 354,964,
Baker, 460,348,
Bemis, 373,635,
Bemis, 402,890,
Bemis, 405,691,
Bemis & Pfingst, 410,871,
Bemis, 413,890,
Bemis, 449,382,
Bemis, 472,271,
Bickford, 450,608.
Bird, 436,031,
Brill, 357,811,
Brill, 373,640,
Brill, 418,441,
Brill, 432,115,
Diehl, 396,272,
Howard, 396,694,
Hubbard, 457,740,
Kirkley & Gray, 86,416,
La Mothe, 402,169,
Manier, 409,993,
Manier, 412,640,
Peckham, 419,876,
Peckham, 471,061,
Peckham, 417,937,
Peckham, 424,723,
Peckham, 464,253,
Robinson, 451,952,
Schoen, 255,200,
Steves, 64,378,
Taylor, 437,167,
Vose, 199,945,
Vose, 214,328,
Vose, 214,329,
Vose, 347,281,
Vose, 348,251,
Vose, 350,174,
Vose, 351,819,
Vose, 330,445,
Weber, 463,738,
Figure 6,679, Knight'- Dictionary.
Figure C, Knight's Dictionary, p. 1345.
Street Railway Journal for October, 1889.
Street Railway Journal for November, 1889.

The cause was argued by counsel for the parties, Messrs. Briesen and Knauth acting therein also as counsel for The Bemis Box Car Company, the real defendants, and the court, upon consideration, filed an opinion in the *in* cause on July 9, 1900, holding that the

said letters patent as to claims Nos. 1, 2, 9, 10, 11, 12, 14 and
54 27 were good and valid and the title therein was vested in the complainant therein, and directing a decree to that effect and awarding an injunction against the defendant therein to restrain it from infringing the rights of the complainant therein in respect thereof and referring the cause to a master to ascertain the damages and profits due to the complain-t therein, with costs. On the 26th day of July, 1900, the court entered a decree in accordance with said opinion, and on the 30th day of July, 1900, a writ of perpetual injunction issued directed to the said defendants, enjoined it from further infringing the said last-mentioned claim.

On October 1, 1900, the said court entered a further decree rescinding so much of said decree as referred the cause to a master to take an account and decreed that the complainant recover one dollar as a nominal damages and profit and $971.49 costs.

No appeal has been taken on behalf of the defendant, or by the Bemis Car Box Company, from the said decrees.

I annex hereto as part of this affidavit, certified copies of the said decrees, the opinion of the court being reported in 103 Fed. Rep., 289.

I produce herewith for use at the hearing a complete copy of the printed pleadings and proofs in the said cause which were prepared under the rules of the said court and were before the court at final hearing.

On October 13, 1900, I filed in the Patent Office a written disclaimer of claim 17 of said letters, patent No. 478,218, duly executed according to law, in which the J. G. Brill Company joined; a copy of said disclaimer is annexed to this affidavit, and marked Exhibit "H."

A copy of the file-wrapper in the Patent Office of the United States relating to the application for the letters patent in suit was offered in evidence in the said cause, and is reproduced in the printed copy of the defendant's record in said cause, above referred to by me.

55 I have for nearly thirty years past been very familiar with all the styles and types of street railway cars in use throughout the United States. I have been familiar since the introduction of electric trucks in 1887, with the various types of car trucks manufactured and sold in the United States and with those manufactured and sold by The Peckham Motor Truck and Wheel Company, defendant, and its predecessor in the business, the Peckham Car Wheel and Axle Company, I believe the former company was organized about April, 1891. I have seen a great many of the trucks made by the former company in operation in different parts of the United States and I have constantly seen their advertisements showing cuts or drawings of such trucks of various types, both in the street railway trade journals and in advertising matter circulated by said company in the trade. I produce, as a part of this affidavit, marked Exhibit "I," a sheet of advertising matter taken from page 1 of the Street Railway Journal of the issue of December, 1897. The Street Railway Journal was then and has been ever since, the

most important street railway periodical published in the United States, had and has an extensive circulation therein. I have been in the constant habit *habit* of reading its successive issues since its first publication and have frequently seen within the last six years advertisements for the Peckham Motor Truck and Wheel Company therein, containing cuts or drawings of trucks constructed like those contained in the cut or drawing which I now produce. I believe that these advertisements are the advertisements of The Peckham Motor Truck and Wheel Company, defendant. I have seen, in actual use on street railways in the United States, within three years, truck structures which are of the same construction as the truck structures shown on the said page marked "Exhibit I," just referred to by me, and therein respectively designated as "Excelsior," "Standard," and "Extra Long."

56 The said trucks that I have seen all bore upon them the name of the "Peckham Motor Truck & Wheel Company" upon the parts of each of the saddles over the journal boxes or elsewhere.

In my opinion, the trucks of all three of said methods of construction are efficient in preventing or lessening oscillation and for the same reason. The spiral springs are quick-acting springs and have a certain period of action. The elliptic springs are softer and slower acting springs and have a different period of action from the spiral springs. When the two classes of springs are combined in a truck under a car in any of the relative positions shown in said "Excelsior," "Standard," and "Extra Long" trucks and such cars begin to oscillate, the rhythm is broken and the oscillation thereby checked. In my opinion, all four such trucks operate in the same way, and have the same effect in checking or lessening oscillation, and this is due to the same cause as above set forth.

Elliptic springs of the general character and weight of those placed by the J. C. Brill Company on trucks of the construction shown in letters patent in the suit are much more expensive than the spiral truck springs used by them on the same trucks, and I believe that the same statement is true of the relative expense of elliptic springs and spiral truck springs used by all truck-builders upon trucks of this construction. Furthermore, for the mere purpose of sustaining the load, the elliptic springs are no better and no more efficient in any respect than spiral springs would be if substituted therefor. The sole object of the use of elliptic springs in combination with spiral springs in the truck of the patent in suit is to lessen or prevent oscillation. Furthermore, trucks of this type, with an extended spring base, cost, to manufacture, at least ten per cent. more than the old style of trucks with side beams and spiral springs,

57 but without an extended spring base, and weigh at least fifteen per cent. more. Railway companies, which always regard economy in cost and in weight as of great importance, would not buy heavier and more costly trucks if they did not believe them to be better adapted for the prevention of oscillation.

JOHN A. BRILL.

Sworn to and subscribed before me this thirteenth day of October, 1900.

R. W. BRAGG, JR.,
Notary Public.

[SEAL.]

(Here follow diagrams marked pp. 58, 59, 60 & 61.)

62 EXHIBIT F.

Liber M 50, page 300.

Know all men by these presents that I, George Martin Brill, of the city of Philadelphia, Pennsylvania, in consideration of the sum of one dollar, to me in hand paid by John A. Brill of the said city, the receipt whereof is hereby acknowledged, have sold, assigned, and set over, and do hereby assign, sell and set over unto the said John A. Brill, the following letters patent of the United States, and all my right, title and interest therein and thereunder and all the rights thereby secured.

No. 1. One full undivided half interest of, in and to, letters patent, No. 427,966, dated May 13, 1890, to G. M. and J. A. Brill for improvements in motor cars.

No. 2. Letters patent, No. 445,307, dated January 27, 1891; for improvements in car brakes, granted to George Martin Brill.

No. 3. Letters patent, No. 457,599, dated August 11, 1891, for improvements in trucks for electric motors, granted to George Martin Brill.

No. 4. Letters patent, No. 461,662, dated October 20, 1891, for improvements for motor trucks for cars, granted to George Martin Brill.

No. 5. Letters patent, No. 478,218, dated July 5, 1892, for improvements in car trucks, granted to George Martin Brill.

The same to be held and enjoyed by the said John A. Brill for his own use and behoof and the use and behoof of his legal representatives to the full end of the term for which such letters patent were granted respectively as fully and entirely as the same
63 would have been held and enjoyed by me had this assignment not been made.

Witness my hand and seal this 3rd day of December, A. D. 1894.

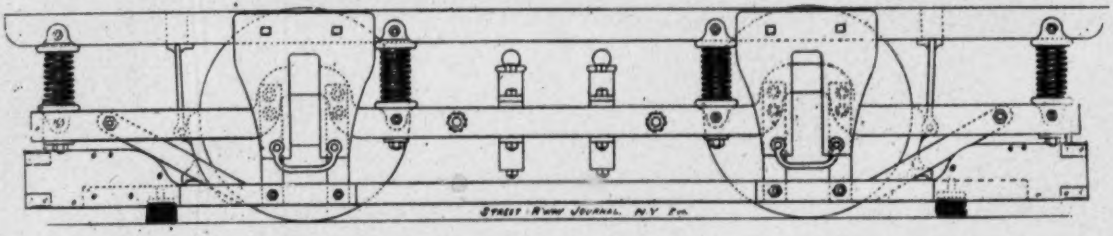
GEORGE MARTIN BRILL. [SEAL.]

Witnesses:

M. H. McNEIL.
HENRY C. ESLING.

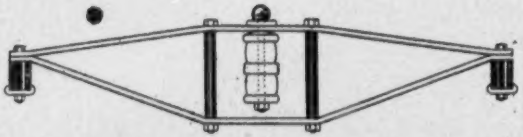
Recorded December 7, 1894.

Peckham's NON-OSCILLATING Electric Motor Truck,



Designed expressly for Long Cars,

—WITH—



FLEXIBLE MOTOR HANGER.

See Page 491 of this issue of Street Railway Journal.

No. 4414 Brill v. Peckham Co. p. 58

38 Fed. 58

FOLD OUT IS TOO LARGE TO BE FILMED

Notary Public.

Recorded July 10th, 1897.

6—444

EXHIBIT G.

Liber E 56, page 172.

Whereas, I George Martin Brill, did obtain letters patent for certain new and useful improvements in car trucks, which letters patent bear date the fifth day of July, 1892, and are numbered 478,218, and

Whereas, John A. Brill, of the city of Philadelphia, is desirous of acquiring an interest therein.

Now, this indenture witnesseth, that, for and in consideration of the sum of one dollar to me in hand paid, the receipt of which is hereby acknowledged, I have assigned, sold and set over and do hereby assign, sell and set over to the said party of the second part, John A. Brill, all the right, title and interest which I have in the said invention, as secured to me by said letters patent, No. 478,218, dated July fifth, 1892, as aforesaid, together with all my right to any and all damages or profits that may now be due me from any and all persons whatsoever by reason of any infringement thereof and the right to sue for, recover and
64 collect the same to be held and enjoyed by the said John A. Brill, for his own use and behoof, and the use and behoof of his legal representatives, to the full end of the term for which said letters patent are to be granted, as fully and entirely as the same would have been held and enjoyed by me had this sale and assignment not been made.

In testimony whereof I have hereunto set my hand and affixed my seal this sixth day of July, A. D., 1897.

GEORGE MARTIN BRILL. [SEAL.]

Sealed and delivered in the presence of

SAMUEL M. CURWEN.
HENRY C. ESLING.

STATE OF PENNSYLVANIA, } ss:
County of Philadelphia, }

On the sixth day of July, A. D., 1897, before me, the subscriber, a notary public for the Commonwealth of Pennsylvania, residing in the city of Philadelphia, personally appeared George Martin Brill, within named, and in due form of law acknowledged the within written assignment of patent to be his act and deed for the uses and purposes therein expressed, and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

[SEAL.] HENRY C. ESLING,
Notary Public.

Recorded July 10th, 1897.

65 *Decree.*

At a stated term of the circuit court of the United States for the southern district of New York, held at the court-rooms of said court, in the city of New York, county of New York, and State of New York, on the 1st day of June, 1900.

Before the Hon. Nathaniel Shipman, Circuit Judge.

JOHN A. BRILL, Complainant,
vs.
THIRD AVENUE RAILROAD COMPANY, Defendant. } In Equity.

This case having come on for final hearing, upon the bill of complaint, the answer thereto of the defendant, the replication of complainant to said answer, and proofs taken on the part of the complainant, and Mr. Joseph L. Levy, solicitor, and Mr. Francis Rawle, of counsel, having been heard on behalf of the complainant, and Mess. Hoadley, Lauterbach & Johnson, solicitors for defendant on its behalf, and Mess. Briesen & Knauth, on behalf of the Bemis Car Box Company of New York City, N. Y., and Springfield, Mass.

Now, therefore, upon consideration thereof, and on motion of Joseph Levy, Esq., solicitor for complainant, and due deliberation had, it is hereby

Ordered, adjudged, and decreed, that the letters patent of the United States granted to George Martin Brill under date of July 5, 1892, and No. 478,218, for a new and useful improvement in car trucks, are good and valid letters patent, as to claims 1, 2, 9,
66 10, 11, 12, 14 & 27 thereof; and that the complainant herein is entitled to the exclusive rights in, to and under said letters patent, and in and to the inventions and improvements secured thereby; and that the title thereto is duly vested in the complainant, and that the defendant, The Third Avenue Railroad Company, has infringed upon said letters patent, and upon the exclusive rights of the complainant thereunder, infringing claims 1, 2, 9, 10, 11, 12, 14 & 27 thereof, by purchasing from the manufacturer and using car trucks containing the inventions, devices, and mechanical combinations identified by said claims 1, 2, 9, 10, 11, 12, 14 & 27 of said patent, and upon the exclusive rights of the complainant thereunder, as secured by claims 1, 2, 9, 10, 11, 12, 14 & 27 thereof.

And it is further ordered, adjudged, and decreed, that the complainant do recover from the defendant, The Third Avenue Railroad Company, the gains, profits savings, and advantages which the said defendant, The Third Avenue Railroad Company, has derived, received or made by reason of the infringement of complainant's rights as aforesaid; and that said complainant do recover any and all damages which he has sustained by reason of such infringement of his exclusive rights by said defendant as aforesaid.

And it is further referred to John A. Shields, Esq., he having been consented to by the parties of record herein, to ascertain, take and state the number of car trucks purchased, used or sold, or caused to

be purchased, used or sold by said defendant, The Third Avenue Railroad Company, or which the said defendant has now on hand, and the gains, profits savings and advantages derived by said defendant, from and through said infringement, and to assess the damages thereby suffered by the complainant, and to report thereon to the court with all convenient speed.

And the said defendant, through its officers and managers, is hereby directed and required to attend before the said John
67 A. Shields, as master, from time to time, as may be required by him, and to produce before him such, books, papers, exhibits, statements, vouchers and documents, as it may be directed by the said master to do, and to submit to such oral or other examinations as the master may direct; and that the costs of such reference be awarded to the complainant herein.

And it is further ordered, adjudged and decreed, that a perpetual injunction be issued out of and under the seal of this court, enjoining and restraining the defendant, The Third Avenue Railroad Company, and its officers, trustees, directors, managers, agents, attorneys, servants, workmen, from directly or indirectly selling, making, or causing to be made, using or causing to be used, working or putting into practice, operation or use, or vending to others to be used in any manner, any street or other car trucks containing or embodying, or in any way counterfeiting or imitating any of the said inventions described and secured in said letters patent, and from infringing upon or violating any of the said letters patent by the manufacture, use or sale of street or other car trucks involving the inventions, devices and combinations identified by said letters patent, and the first, second, ninth, tenth, eleventh, twelfth, fourteenth, and twenty-seventh claims thereof, or from in any manner infringing upon the said letters patent, or the complainant's right thereunder.

And it is further ordered, adjudged and decreed, that inasmuch as claim 17, which has been held non-patentable, is not a substantial and material part of the thing patented, the complainant do recover from the defendant, The Third Avenue Railroad Company, all his costs in this suit to be taxed, and that the question of increasing the damages be reserved until the coming in of the master's report.

N. SHIPMAN,
Circuit Judge.

68 The appointment of John A. Shields, as master of this court to hear and report as herein recited is consented to.

New York, July 19th, 1900.

HOADLY, LAUTERBACH & JOHNSON,
Solicitors for Defendant.

EUGENE TREADWELL,
Of Counsel for Defendant.

JOSEPH L. LEVY, *Solicitor for Complainant.*

(Endorsed:) United States circuit court, southern district of N. Y. John A. Brill, compl't *vs.* Third Avenue Railroad Company, def't.

Decree. Joseph L. Levy, solicitor for compl't, 206 Broadway, N. Y. city. A copy this day received, July 18, 1900. Hoadley, Lauterbach & Johnson. U. S. circuit court, Filed July 26, 1900. John A. Shields, clerk.

A copy.
[SEAL.] (S'g'd) JOHN A. SHIELDS. *Clerk.*

Final Decree.

Circuit Court of the United States, Southern District of New York.
In Equity.

JOHN A. BRILL, Complainant,
vs.
THIRD AVENUE RAILROAD COMPANY, Defendant.

And now, October 1st, 1900, on motion of Joseph L. Levy, Esq., Francis Rawle, Esq., and Frederick P. Fish, Esq., for complainant, it is

69 Ordered, adjudged and decreed that the decree of this court entered on the 26th day of July, 1900, be rescinded in so far as the same directs that the cause be referred to John A. Shields, Esq., to ascertain, take and state the number of car trucks purchased or sold, or caused to be purchased, used or sold by said defendant, The Third Avenue Railroad Company, or which the said defendant had on hand, and the gains, profits, earnings and advantages derived by said defendant from and through said infringement; to report on the profits derived by the defendant; and to assess the damages suffered by the complainant, and to report thereon to the court; and in so far as it directs the defendant to attend before said master when required, and to produce books and papers, &c., before him, and to submit to such oral or other examination as the master might require, and that in all other respects the said decree do stand as the final decree of this court.

And it now appearing that the complainant waives the right to an accounting of profits and to any substantial recovery of damages against the defendant, it is hereby further

Ordered, adjudged and decreed, that the complainant do recover from the defendant the sum of one dollar as damages and profits, and the further sum of nine hundred and seventy-one dollars and forty-nine cents ($971.49) costs and disbursements taxed herein.

E. HENRY LACOMBE, *U. S. C. J.*

I, John A. Shields, clerk of this court, do hereby certify that the costs directed by the decree entered in this cause on the 26th day of July, 1900, to be taxed, have been taxed in the sum of nine hundred and seventy-one dollars and forty-nine cents ($971.49), and that defendant was represented at the said taxation by counsel.

JOHN A. SHIELDS,
[SEAL.] *Clerk U. S. Circuit Court,*
Southern District of New York.

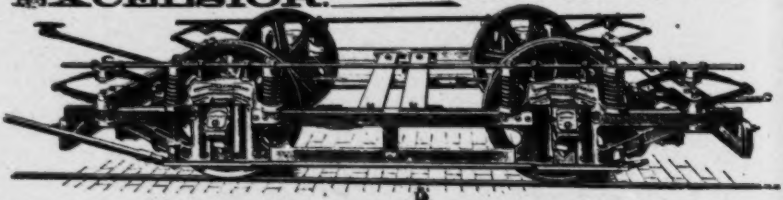
Peckham's SYSTEM OF

"SINGLE" ELECTRIC TRUCKS

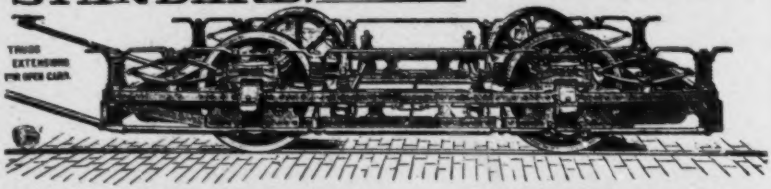
Comprises Trucks adapted for any and all conditions of service, from light weight, short 14 ft., to extra heavy and extra long 22 and 24 ft. closed, and 28 to 32 ft. open cars.

Also Special Trucks for Freight, Mining Cars, and Locomotive and Switching Service.

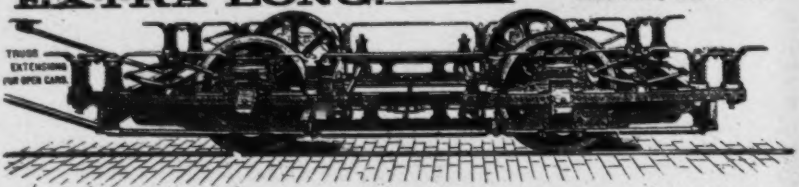
EXCELSIOR. Designed for Light Weight Electric Cars.



STANDARD. Designed for Medium Length and Weight Electric Cars.



EXTRA LONG. Designed for Extra Long and Extra Heavy Electric Cars.



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Boston, 53 State Street. Philadelphia, 420 Walnut Street. Chicago, Marquette Building.
San Francisco, 123 California Street. London Office: 30 Victoria Street, Westminster.

70 The form and entry of the foregoing decree is hereby consented to.

HOADLEY, LAUTERBACH & JOHNSON,
Solicitors for Defendants.

New York, October 1, 1900.

(Endorsed:) U. S. circuit court, southern dist. of N. Y. John A. Brill, compl't, *vs.* Third Avenue R. R. Co., def't. Decree, Joseph L. Levy, solicitor for compl't, 206 Broadway, N. Y. city. U. S. circuit court, Filed October 1, 1900, John A. Shields, clerk.

A copy. [SEAL.] JOHN A SHIELDS, *Clerk.*

EXHIBIT H.

To the Commissioner of Patents:

Your petitioner, John A. Brill, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, and State of Pennsylvania, and the J. G. Brill Company, a corporation organized and existing under the laws of the State of Pennsylvania, having its principal place of business in said county of Philadelphia, represent that in the matter of certain improvements in car trucks, for which letters patent of the United States, No. 478,218, were granted to George Martin Brill on July 5th, 1892, the said John A. Brill is assignee of the entire interest therein by deed of assignment from George Martin Brill to him, dated December 3rd, 1894, and recorded in the Patent Office in Liber M 50, page 300, and by deed of assignment to George Martin Brill to him dated July 6th, 1897, and recorded in the Patent Office in Liber E 56, page 172, and the said J. G. Brill Company is the sole and exclusive licensee thereof for the whole of the
71 United States by virtue of a verbal agreement between the said John A. Brill and the J. G. Brill Company aforesaid, and that they have reason to believe that from inadvertence and without any fraudulent or deceptive intention, the specifications and claims of said letters patent are too broad, including that of which the said patentee was not the first inventor.

Your petitioners, therefore, hereby enter this disclaimer of claim seventeen (17), thereof, which is in the following words:

"17. The upper chord having the depending cap 45, with downwardly extending legs 46, and elliptical springs held on the side beams, adapted to move in said cap, substantially as described."

Dated twelfth October, A. D. 1900.

JOHN A. BRILL.
J. G. BRILL CO.,
[SEAL.] By GEO. MARTIN BRILL, *President.*

Witnesses:
As to J. A. B.,
JOHN SHEVLIN.
H. T. TALIAFERRO.
As to J. G. B. Co.,
HENRY C. ESLING.

(Here follows diagram marked p. 72.)

73 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS.

STATE OF PENNSYLVANIA, *County of Philadelphia,* } *ss:*

George Martin Brill, being duly sworn according to law, deposes and says as follows:

I am the president of The J. G. Brill Company, complainant, which is a Pennsylvania corporation engaged in the manufacture of railway cars and trucks in Philadelphia. I have read the bill of complaint in the above cause. The facts therein averred are true, except as to those matters which are therein averred upon information and belief, and as to those I believe them to be true.

I reside at 3500 Powelton avenue, Philadelphia. I have been president of the J. G. Brill Company for over twelve years last past, and before that was vice-president of it. I have been in the car-manufacturing business with that concern for over thirty years. The original company was J. G. Brill & Son, and afterwards J. G. Brill & Company, and for about fifteen years, J. G. Brill Company. I was a member of both the said firms. The company employs over thirteen hundred men. The annual output of its works is
74 about two and a half millions of dollars in cars, trucks and railway supplies.

I am the patentee under letters patent of the United States No. 478,218. I have made a large number of inventions connected with cars and trucks, and have taken out a large number of letters patent of the United States therefor. My connection with the business has been chiefly in the manufacturing department.

In April, 1889, the company had at its works fo-r double truck cars built for the Julien Electric Accumulator Company, of New York, which the latter company requested us to sell for its account. We sold them to the Quincy and Boston railway and equipped them with our old type of No. 6 four-wheel truck. The car bodies were extra long and I then conceived the idea of extending the spring base of the truck, that is, the side beams, at each end of the truck, and putting elliptic springs on these end extensions in addition to the spiral axle-box springs which were used on our No. 6 truck. The No. 6 truck was constructed with two spiral springs adjacent to each axle box and supported on the side beams, that is, four spiral springs only on each side and no elliptic springs.

In May, 1889, we had an order for cars from the Wilmington City railway, with extra long platforms. While preparing to build them, I proposed to John A. Brill, one of the complainants in the above cause, who was then and is now an officer of the J. G. Brill Company, and engaged constantly in its manufacturing department, my invention of putting an extended spring base on these cars by

lengthening the side beams at each end and putting elliptic springs on each of the outward extensions of the side beams. I explained to him that this was done to prevent oscillation. I explained the invention to him fully and in such a way that it was made entirely clear to him. I made sketches of it and showed them to him at the time.

75 In regard to putting my invention on that order, John Brill did not agree with me; he said that the Wilmington company had ordered our "No. 6" trucks, and we had better fill the order as they gave it and place this invention upon some later order. The invention was then ready to be put into use as soon as a company were found who were willing to pay a higher price for the truck than they had been paying for our No. 6 or No. 7 types of trucks. Railway trucks are always built upon orders and never kept in stock. The truck companies build what the railway companies specify and order and only that.

In November, 1890, I went to Cleveland to get an order for cars from the Broadway and Newburgh Railway Company of Cleveland. They wanted 21-foot car bodies mounted on our "No. 7" type of four-wheel trucks. They asked me to guarantee the cars against oscillation. I therefore decided to build them with an extended spring base by lengthening the side beams outwardly in both directions on our "No. 7" truck, and putting elliptic springs on these outward extensions of these side beams. This was the method of construction which I had previously invented as above stated. I contracted with the said railway company to build their cars in that way, and agreed to guarantee them against oscillation.

On November 14, 1890, I wrote a letter to John Brill from Cleveland, in regard to this order, and on the next day, November 15, having got the order, I wrote a letter of instruction to James Rawle, the secretary of the J. G. Brill Company, in regard to building the cars and trucks. These two letters are the two letters referred to in the affidavit in the cause of John A. Brill.

On my return to the works, within a few days after writing these two letters, I took the matter up. The draftsmen of the company prepared a drawing from the said two letters and completed

76 the same on December 8, 1890. I give this exact date from seeing it upon the said drawing, which I saw at the time it was completed and now recognize. The trucks for the Cleveland Company were built in accordance with the directions in my said letters of November 14 and 15, 1890, and with the drawing above mentioned, the latter having been made by our draftsman from the said letters. I remember that the letter to James Rawle, was written the day after I wrote the letter to John A. Brill, that is, the day after November 14, 1890. Both letters are entirely in my handwriting; I also made the sketches on them.

These sketches and letters were handed to our draftsmen and furnished him all the information necessary to enable him to make the said drawing of December 8, 1890, and he did make it from them.

The trucks were built at our works with elliptic springs on the

outward extentions of two side beams and the two spiral springs adjacent to each of the axle boxes. They were built at once and were delivered to the said railway company in January, 1891. The contract price of the said trucks was $275 which was $25 a truck more than our regular price for our "No. 7" truck.

The said trucks were at once put in use by the Broadway & Newburg Railway Company, and, as I am informed, have been in use for many years. I, personally, saw one of them in use on the said road in Cleveland within the past two years.

My object in making said improvements was to prevent oscillation. I believed that the elliptic springs, which are softer and slower acting springs would when thus used in combination with spiral springs, which are quick-acting springs, produce this result. Experience has fully demonstrated that I was correct.

The oscillation of cars is thus explained:

With the introduction of electric propulsion, it was necessary to run cars at a much greater rate of speed. This was the cause
77 of very excessive oscillation in cars, and oscillation became a very serious evil in street railway practice. As companies began to lengthen the car bodies with an increased overhang at each end, the tendency to oscillation was increased. When a car running at a high speed begins to oscillate, it is necessary to slow down the speed at once. With excessive oscillation, there is a serious danger of derailment and many instances have been known in which cars have been derailed under those circumstances. The oscillation or galloping of the car body, when in motion, wears out and rapidly deteriorates the tract, chiefly at the rail joints, and the more the track deteriorates, the greater the oscillation. This "pounding," caused by oscillation, wears out the truck parts and the car body, and the motion is extremely uncomfortable for the passengers, and instances have been known where passengers have been thrown from open cars by this galloping motion.

The type of truck which I invented, as above stated, was thereupon designated by the Brill Company as its "No. 13" truck and was made known to the trade in 1891 and thereafter and entirely took the market throughout the United States. Nearly all of the truck dealers began to build trucks constructed in accordance with the patent in suit and the railway companies began to order them almost exclusively. Practically, and except for a few limited purposes where short car bodies were required, the old types of truck were no longer manufactured or sold, and in the course of a few years after my said invention, nearly 90 per cent. of all the four-wheel trucks in use in the United States were constructed in accordance with this invention. There is also a large foreign demand for them. The Brill Company practically built no more of its "No. 6" and "No. 7" types of truck, but, in the line of four-wheel car trucks, manufactured and sold almost exclusively trucks of its "No. 13" type.

78 Since their first introduction, I have had personal knowledge of the various kinds of trucks that have been manufact-

ured and sold and in use on electric street railways in the United States.

GEORGE MARTIN BRILL.

Sworn to and subscribed before me, this 13th day of October, 1900.

HENRY C. ESLING,
Notary Public.

[SEAL.]

United States Circuit Court, Southern District of New York. In Equity.

JOHN A. BRILL and J. G. BRILL COMPANY
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS.

STATE OF PENNSYLVANIA, *County of Luzerne*, } ss:

James Fagan, being duly sworn according to law, deposes and says as follows:

I reside in Wilkesbarre, Pennsylvania. I am superintendent of the motive power of the Wilkes-Barre and Wyoming Valley Traction Company, in whose employ I have been continuously since January, 1892. It is operated by the United Power and Transportation Company. My duty is to look after the motive power and the trucks and the rolling stock. The company operates fifty
79 cars. I have had experience in street railway business in Scranton, Philadelphia, Harrisburg and Chicago. My present company operates roads in Philadelphia; Trenton, N. J.; Wilmington, Del.; and Chester, Reading and Lebanon, Pa.

When I went into the employ of the company in January, 1892, it had in use sixteen-foot car bodies, mounted on Brill "No. 7" and St. Louis trucks. These were the ordinary side-beam trucks, with only spiral springs supported thereon on either side of and adjacent to the axle boxes—that is, four spiral springs on each side. When these cars were running on the ordinary horse-car rails, the oscillation was very excessive. The effect of it was to "pound" the rails and wear them out rapidly. The effect on the passengers was very disagreeable. The effect on the trucks and car bodies was to cause excessive wear. With an oscillating car, there was a tendency to get the trolley off the wire.

Where there is a tendency to oscillation, it increases with the speed. It takes place at, or is caused by, the "low" or depressed joints of the rails and the intersection of tracks and where there is a change of grade.

The oscillation with the trucks I have mentioned was so injurious that we were obliged to abandon the use of these trucks.

Since some time in 1892, we have introduced Brill "No. 13" type of truck on these roads. It is built with a spiral spring on either side and adjacent to each axle box, and an elliptic spring on each

of the outward extensions of the side beams—that is, with four spiral springs and two elliptic springs on each side of the truck. My first knowledge of this type of truck was in the spring of 1892.

My company ceased to use the old type of truck some time in 1892 or 1893, replacing them with Brill "No. 13" trucks. We threw out the old trucks and substituted the Brill "No. 13" under the same car bodies. We thereby reduced oscillation to a
80 safe point and were enabled to run our cars at a higher rate of speed on the same road-bed. There was also less expense required in keeping up the trucks and less strain on the car bodies. We now use Brill "No. 13" and "No. 21," the only difference between them is that in the latter the side beams are solid forgings.

The profitable operation of an electric street railway depends chiefly upon running cars at high speed. When a car in running fast begins to oscillate, the speed has to be checked till the car becomes steady.

My experience with the said St. Louis trucks in use on that road in the early part of 1892, constructed with spiral springs adjacent to the axle boxes and no extended ends or elliptic springs, was that they were very hard riding. We thereupon decreased the strength of the supporting springs, but the effect of that was to increase the oscillation so much that those cars continually ran off the track, and for that reason we discarded the use of that particular type of truck. At one time the oscillation was so bad on our Canal Street line that people refused to ride in the cars on that account. The use of the Brill "No. 13" did away with the excessive oscillation and allowed us to run at a high rate of speed without danger or annoyance to passengers or injury to the rolling stock or tracks.

In my opinion, the reason that the combination of elliptic with spiral springs, as in the Brill "No. 13" truck, lessens or obviates oscillation, is that the elliptic spring is a softer spring, having a different period of vibration than the spiral spring. When combined, as in the "No. 13" truck, the effect is to break up or prevent the up and down rocking motion of the car body, that is, to lessen the oscillation.

Four-wheel trucks with a combination of spiral and elliptic springs on the extended ends of the side beams have practically displaced all other types of single trucks in this country, and have gone into general use.

81 I have been and am familiar with the trucks for four-wheel electric cars manufactured and sold for some years past by the Peckham Motor Truck & Wheel Company, of Kingston, New York, and advertised by that company and known in the trade respectively as "Excelsior," "Standard," and "Extra Long."

I believe that the combination of spiral and elliptic springs on the extended spring base of the Peckham "Standard," and "Extra Long" types of trucks, operates in the same way as they do when they are combined and arranged as on the Peckham "Excelsior" trucks and on the Brill "No. 13," and, in use, have the same or a similar effect in preventing or lessening the galloping motion of the car.

(S'g'd) JAMES FAGAN.

Sworn to and subscribed before me, this 13th day of October, 1900.

(S'g'd) B. B. WINCHESTER,
[SEAL.] *Notary Public.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN A. BRILL and J. G. BRILL COMPANY, Complainants,
vs.
PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS., Defendants.

COUNTY OF NEW YORK, } *ss:*
State of New York, }

Harvey M. Littell, having been duly sworn accordiag to law, deposes and says as follows:

82 I live in the city of New York, borough of Manhattan. I am forty-four years of age. I have been engaged in the street railway business since 1874. I was in the employ of the Louisville City Passenger Railway Company from 1874 to 1880 and during that time I think I filled every position on the road in connection with the operation of its cars. In 1882 I became superintendent of the St. Paul Street Railway Company and remained with them until 1888, in that and other capacities. On October 1st, 1888, I became general manager of the Cincinnati Incline Plane Railway Company, which operated, electrically, a street railway with about sixty cars. I had charge of its electric equipment. On January 1st, 1893, I became president and manager of a large electric street railway system in New Orleans, operating 125 miles of road and about 200 cars. I had charge of the electrical equipment of that system, which was completed about the time I left there. I was there about two and a half years. Subsequently, I became president and manager of a large electric street railway system in Brooklyn. Then I became vice-president and manager of the Metropolitan Street Railway Company of New York, which was partly electrical, partly cable, and partly horse railway.

I bought the first electrical trucks in the fall of 1888 and subsequently purchased trucks for other roads. I personally and carefully investigated various truck constructions at that time and became very familiar therewith and had the personal responsibility of deciding what styles of trucks should be bought.

In the operation of four-wheel cars at a high rate of speed on a smooth track with grades, or on a track where the rail joints are imperfect or where a car is not evenly loaded, there is a constant tendency towards oscillation. When a car oscillates, the wheels act

83 as a hammer upon the track. This finally results in what are called "low joints," that is, the rails become depressed at the ends and high in the middle. When they get into this shape, they have to be replaced. The oscillation of a car is like see-

sawing; the weight gets first on the front wheels and then on the rear wheels and acts as a hammer.

This wear and tear on street railway tracks has led to the introduction of very heavy rails in street railway practice; a good deal heavier than those required on steam railroads. The wear and tear on street railway tracks is a great deal more expensive on account of the cost of repaving when tracks are repaired. Oscillation also shortens the life of the truck and the car body and makes an uncomfortable vehicle for passengers.

Where cars are running at the high rate of speed and begin to oscillate, brakes must be applied immediately and the speed reduced. If this is not done, the car may be derailed. Many derailments have been caused by excessive oscillation.

I first saw the Brill "No. 13" truck made with elliptic springs on the extended side beams and spirals adjacent to the axle boxes in Pittsburg, in October, 1891, at the meeting of the American Street Railway Association.

Prior to that time, the Cincinnati company above mentioned used trucks which did not have extension frames or elliptic springs. Until October, 1891, I never saw an extension frame with spiral and elliptic springs combined. I had, previously to that time, seen Maguire trucks with spiral springs on the extension side frames, but no elliptics. There were eight of such spirals on each side of the truck. Prior to October, 1891, trucks with all spiral springs were the only kind that ever came under my notice. After October, 1891, I had experience in New Orleans with Maguire trucks constructed with extended axle-box frames and all spiral springs. My
84 first actual experience with the Brill "No. 13" trucks was in 1893, in New Orleans. I tried them on the road there and found that the oscillation was distinctly less than in the case of the Maguire trucks above mentioned. By using said Brill "No. 13" trucks, we were enabled to acquire a high rate of speed, without slowing up as we frequently had to do when we operated trucks constructed without elliptic springs.

The car bodies which we used in New Orleans in 1893, mounted on Brill "No. 13" trucks with combined spiral and elliptic springs and extension frame, were larger than the cars which I operated in 1888 in Cincinnati. The latter seated from twenty-two to twenty-six passengers, while the New Orleans cars seated forty-five passengers.

Trucks constructed with side beams and combined elliptic and spiral springs, with an extension frame, have long since gone into general and almost exclusive use on the street railways throughout the United States. They have almost entirely displaced the trucks of the earlier type, which had all spiral springs. So far as the use of trucks under long car bodies is concerned, I believe that this type has entirely displaced the earlier types with all spiral springs.

The profits of electric railways depend chiefly upon two things: Long car bodies, carrying an increased number of passengers and the operation of the cars at high rates of speed. The latter increases the daily car milage; the former enables the car to carry a larger

number of passengers per mile. The operation of electric railways with sixteen-foot car bodies, run at a low rate of speed, would not, in my opinion, be a profitable business.

I am familiar with the four-wheel electric car trucks that have been manufactured by the Peckham Motor Truck & Wheel Company, of Kingston, New York, for some years past and known in the trade as "Excelsior," "Standard," and "Extra Long." In my opinion, the operation of the said combination of elliptic and
85 spiral springs as arranged on the "Standard" and the "Extra Long" trucks is the same as that of the combination of elliptic and spiral springs as arranged on the "Excelsior" and on the Brill "No. 13" truck. The combination of ellipties and spirals in all four of said constructions to brake up the rhythm or period of the oscillation of the car bodies when in motion and thereby lessens or prevents the galloping or rocking motion of the car.

HARVEY M. LITTELL.

Sworn and subscribed before me, this 12th day of October, 1900.

CHARLES D. LITHGOW.

[SEAL.] *Notary Public, No. 61, N. Y. Co.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Plaintiffs,
vs.
PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS., Defendants.

COUNTY OF WORCESTER, } ss:
State of Massachusetts, }

John N. Akarman, having been duly sworn according to law, deposes and says as follows:

I am forty-six years of age. I am superintendent of the Worcester, Mass., Consolidated Railway Company. I first became
86 engaged in the street railway business in 1873, on the South Boston road. I stayed there till 1875 or 1876, when I entered the service of the Middlesex Horse Railroad Company, of Boston, and stayed there till 1883, when I became superintendent of the Charles River Street Railway Company, of Boston, Mass. I left that road and built the Biddeford and Saco road in Maine; then I became general superintendent of the Newark Passenger Railroad Company, of Newark, N. J., and was superintendent until 1892, when I became the superintendent of the Worcester Consolidated Railway Company, of Worcester, Mass., which position I now hold.

I first became acquainted with the use of electric cars about the spring of 1891, of the Newark road above mentioned. The Worcester road was equipped with electricity under my direction, and since 1893, has been so operated.

I have had a very considerable experience with four-wheel cars on electric street railways. In the use of cars of this type, there is

a constant tendency to oscillation of the car body. This in my opinion, is due to the fact that the car body is longer than the wheel base, or in other words, the distance between the axle centres of the truck, and overhangs the truck at each end. The wheel base in such a car is limited to a length of between six feet and seven feet six inches, on account of the short radius curves on narrow city streets. Car bodies mounted on such trucks are made of a length of from eighteen to twenty-two feet, being made as long as possible in order to accommodate the largest number of passengers.

The cause of oscillation in operating such a car body, when placed upon such a truck, is as follows:

It was the usual practice in laying the rails to leave a slight space between the ends of the rails, and when the ends of the rails became more or less depressed, a car, in passing over such depression,
87 gets a rocking or galloping or oscillating motion. This is aggravated somewhat when the rail joints of the opposing rails are placed opposite each other, and is modified somewhat when the joints of one opposing rail are placed half way between the joints of the other opposing rail, which is commonly known as "staggering" the joints. This rocking, or galloping or oscillating motion is increased when the track gets out of repair, and also when cars are run at a high rate of speed. Other imperfections of the truck, and also sudden changes of grade, would also cause this rocking or galloping motion.

When a car, under such conditions, begins to rock or gallop, it pounds the joints of the rails and depresses them, thus making the track conditions more and more likely to produce such motion. It has therefore been found necessary in the best modern street railway practice to use rails weighing from 90 to 110 pounds to the yard, whereas, on steam railroads, rails are used weighing from 50 to 100 pounds to the yard. Track repairs in street railways is a matter of very great expense on account of the necessity for repaving in connection with it. In street railways, it has been found desirable to lay the tracks with cast-welded or electrically welded joints, so as to make a continuous rail and thereby prevent oscillation. The effect of oscillation on a car truck is to bring about strains in the truck structure, and to cause excessive wear thereof, and thereby diminish its life and service. The same is true of the effect of oscillation upon the car body. Oscillation also causes great discomfort to the passengers, and on open cars it presents an element of danger to the passengers, there having been cases where passengers have been thrown from their seats when the oscillation was excessive.

Oscillation is greatly increased with an increase of speed, and as soon as a car in rapid motion begins to oscillate seriously, it is necessary at once to slow down the car, as in such cases there is great danger of derailment.

88 The oscillation of the car also affects seriously the overhead wire construction in overhead-trolley systems; the motion of the car is imparted, through the trolley pole to the trolley wire, and

gives the trolley wire a swaying motion, which in time, crystallizes it and leads to frequent breaks of the wire.

My first experience with four-wheel electric cars was on the Newark Passenger Railway Company, of Newark, New Jersey, about the spring of 1891. It operated four-wheel trucks manufactured by the Bemis Car Box Company, of Springfield, Massachusetts, of three different types. Some of them merely had spiral springs next to and on each side of the axle boxes; others had extended spring bases, and in connection therewith, plungers or rods entering into a box-like compartment (supported on the extended spring bases), in which there were spiral springs or cushions which would be compressed when the car began to oscillate. The third type had additional spiral springs placed upon the outwardly extended ends of the side beams of the truck. None of these types of truck were successful in preventing excessive and dangerous oscillation, and the railway company with which I was then connected, made some experiments of its own, using trucks having side beams with outward or end extensions and spiral springs thereon of different sizes and resistance. These experiments were also unsuccessful in preventing the oscillation. In the use of all four types of trucks on that road, as above described, we had excessive and dangerous oscillation of the cars, and we were unable to run our cars at the rate of speed necessary for successful operation.

My attention was first called to the Brill "No. 13" truck at the convention of the American Street Railway Association in Pittsburg, in October, 1891. I saw it in operation on a street railway there. I was so favorably impressed by its operation, that the Orange line, of which I had charge in connection with the Newark Pas-
89 senger Railway Company was equipped with twenty of these trucks in 1892; and in equipping the Worcester road, of which I was and am now superintendent, as above stated, we adopted the Brill "No. 13" truck as the standard for all its single truck cars. This was just prior to December 1892. This Brill "No. 13" truck afforded almost a complete remedy for oscillation, and it was for this reason chiefly that it was adopted as a standard on the Worcester road. This "No. 13" truck, which I now refer to, has two longitudinal side beams supported on the axle boxes by short springs, and supporting two spiral springs adjacent to each axle box, one on each side thereof, and elliptic springs on the outward extensions of the side beams.

This type of truck has gone into universal use under four-wheel cars, and has substantially if not completely displaced all other constructions of single trucks.

From a practical observation, my opinion is that the combination of an elliptic and spiral spring, as applied in trucks of this type, breaks, the rhythm of motion or interrupts it. In trucks with all spiral springs, or I should think if it were possible to construct a truck having all elliptic springs, the rhythm of motion is perfect, the springs acting in unison. In the truck as previously described, having the combination of elliptic and spiral springs, the rhythm is

broken and the result is that the galloping or rocking motion was done away with.

I have been and am familiar with trucks for four-wheel electric cars manufactured by the Peckham Motor Truck and Wheel Company, of Kingston, New York, for several years past I have seen them in operation. They are known in the trade as "Excelsior," "Standard" and "Extra Long."

A combination of elliptic and spiral springs arranged as on said "Standard" and "Extra Long," trucks operates in the same
90 way as the combination thereof arranged as in said "Excelsior" truck and in Brill "No. 13," in my opinion. In all four trucks the rhythm is broken up, and the result is that the rocking or galloping motion is done away with.

JNO. N. AKARMAN.

Sworn to and subscribed before me, this 12th day of October, 1900.

ALBERT H. STONE,
[SEAL.] *Notary Public.*

United States Circuit Court, Southern District of New York. In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS.

STATE OF PENNSYLVANIA, }
County of Philadelphia, } *ss.:*

Samuel M. Curwen, being duly sworn according to law, deposes and says: I am and have been for several years last past in the employ of the J. C. Brill Company, and am familiar with its truck business. I have been and am familiar with the successive issues of the "Street Railway Journal," a trade journal having an extensive circulation.

In the issue of the "Street Railway Journal" for June, 1890, I find an advertisement from the Peckham Street Car Wheel
91 and Axle Company containing a cut of an electric street car truck having the side beams supported on the axle boxes and each in turn supporting six spiral springs two of which are placed on either side of and adjacent to each axle box, and one on each of the outward or end extensions of the side beams, but having no elliptic springs. In connection with this cut are these words:

"Warranted to prevent oscillation of 25-foot cars. The strongest, simplest, easiest riding, and most economical motor truck in existence."

"Cantilever truck supports car bodies, equalizes weight and positively prevents oscillation of cars."

For some years thereafter, and up to October 1895, I find in various issues of the "Street Railway Journal" advertisements of trucks of the last above mentioned method of construction. But for several years past, I believe the advertisement- in the said Street

Railway Journal of the Peckham Motor Truck and Wheel Company do not contain any advertisement of trucks of said method of spring construction.

I have examined the said Street Railway Journal for February, 1893, and on page 73 of the advertisements therein I find an advertisement of The Peckham Motor Truck & Wheel Company, defendant, showing what is there designated as a "5 A. cantilever truck," which is constructed the same as the "Standard" truck. In relation to the said truck it is therein stated:

"Guaranteed to prevent oscillation of 30-foot cars."

"Elliptic and spiral springs so combined to give the utmost elasticity with both light and heavy loads."

I have examined the Street Railway Journal for October, 1896, and find on pages 49, 50 and 51 thereof the advertisement of The Peckham Motor Truck & Wheel Company, defendant. On page 49 of said advertisement there is a cut of a Peckham "Excelsior" truck. In said advertisement it is further stated in connection with the said cut as follows:—

92 "Guaranteed to prevent oscillation of cars and pounding of rail joints."

On page 51 thereof is a cut of a Peckham "Standard" truck, and the said advertisement further states in respect of such truck structure as follows:

"Guaranteed to be easy riding, noiseless and prevent oscillation of cars and pounding of rail joints."

On page 51 thereof is a cut of a Peckham "Extra Long" truck and it is therein further stated that there were then over 5,000 of the said three types of trucks, "Excelsior," "Standard" and "Extra Long," in the cities of New York, Brooklyn, Jersey City, Long Island City, Staten Island, Philadelphia, Baltimore, Richmond, and San Francisco.

I have examined the Street Railway Journal for October, 1895, and on pages A and D thereof, I find cuts representing truck structures the same as these last hereinbefore mentioned, *i. e.*, "Excelsior," "Standard" and "Extra Long," and in connection therewith I find on page B the following:

"Why Peckham's cantilever extension trucks are superior to other trucks.

"4th. Because the elliptic and spiral springs supporting the car bodies are so arranged as to give an easy-riding car, whether light or heavily loaded.

"6th. Because they are positively non-oscillating, noiseless and easy-riding whether light or heavily loaded.

"9th. Because, being flexibly supported, they relieve rail joints, reduce cost of track maintenance and prolong life of car bodies."

I have examined the issue of said Street Railway Journal for December, 1896, and find on page 127 thereof the advertisement of the Peckham Motor Truck & Wheel Company.

The said advertisement contains cuts or drawings of Peckham trucks of the said three forms of construction, and in connection therewith contains the following, viz:

93 "Why Peckham cantilever trucks are superior to other trucks.

"6th. Because the elliptic and spiral springs (supporting the car bodies), being graduated give an easy-riding car, whether light or heavily loaded.

"9th. Because the car bodies being cushioned, are relieved from pounding, blows and oscillation, will last twice as long as any other truck."

(S'g'd) SAM'L M. CURWEN.

Sworn to and subscribed before me this 13th day of October, 1900.

HENRY C. ESLING,
Notary Public.

[SEAL.]

United States Circuit Court, Southern District of New York.

JOHN A. BRILL ET AL.
vs.
PECKHAM MOTOR TRUCK & WHEEL COMPANY ET AL.

STATE OF PENNSYLVANIA, }
County of Philadelphia, } *ss:*

Samuel M. Curwen, being duly sworn *to* according to law deposes and says as follows:

I am and have been for the last eight years past in the employ of J. G. Brill Company and am familiar with street railways generally throughout the United States. Within a period of five years past the Peckham Motor Truck & Wheel Company have sold to the Union Traction Company of Philadelphia, several hundred
94 of the style of truck made by them, known as the "Extra Long" and several hundred of the "Standard" type, in addition to many of their "Excelsior" trucks. The said Peckham Motor Truck & Wheel Company have also sold within the said period a large number of their "Extra Long" trucks to the Metropolitan Street Railway Co., of New York City. Within the three or four years last past, the said Peckham Motor Truck and Wheel Company have sold to the Metropolitan Railroad Co., of Washington, D. C., a number of their "Excelsior" and "Standard" trucks. The Cincinnati Street Railway Co., of Cincinnati, O., have been purchasing from time to time from the said Peckham Motor Truck & Wheel Co., a form of truck which resembles the regular truck made by the said Peckham Motor Truck & Wheel Company and known as "Extra Long." The Boston Elevated Railway Co., and the West End Street Railway Company, their predecessor, and the North Jersey Street Railway Co., of Jersey City, N. J., have purchased from the said Peckham Motor Truck & Wheel Co., within the last five years large numbers of trucks similar to the "Extra Long" and "Excelsior" types of trucks. The Richmond Traction Company, of Richmond, Va., has within five years purchased from the said Peckham Motor Truck & Wheel Company, a number of trucks similar to the "Standard" and "Extra Long" trucks.

(S'g'd) SAMUEL M. CURWEN.

Sworn to and subscribed before me this 13th day of October, 1900.

(S'g'd) HENRY C. ESLING,
[SEAL.] *Notary Public.*

95 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and J. G. BRILL COMPANY
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS.

STATE OF PENNSYLVANIA, *County of Philadelphia,* } *ss:*

Vincent C. Anderson, being duly sworn according to law, deposes and says: I am in the employ of Francis Rawle, Esq., of Philadelphia, counsel for the complainant in the above cause. I have examined the periodical in the office called Street Railway Review, being the number thereof for August 13, 1898. On pages 103 to 110 of the advertisements therein, I find advertisements of the Peckham Truck Company, Havemeyer building, 26 Cortland street, New York. On page 104 thereof, I find a cut of a single truck therein designated as "Excelsior No. 7 B," having spiral springs adjacent to the axle boxes and elliptic springs on the end extension of the side beams.

On page 105, there are three cuts of single trucks denominated respectively "Standard No. 6 A," "Extra Long No. 9 A," and "Extra Strong, Extra Long No. 10."

At the foot of page 104 thereof, below the cut of the truck designated as "Excelsior No. 7 B," I find these words:

"We guarantee these trucks to be superior in strength and easy riding to any other (single) trucks in use, excepting our Standard and Extra Long shown on opposite page."

VINCENT C. ANDERSON.

Sworn to and subscribed before me this 13th day of October, 1900.

HENRY C. ESLING,
[SEAL.] *Notary Public.*

96 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Plaintiffs,
against
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS., Defendants.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

Charles G. Hensley, being duly sworn, deposes and says as follows: I am and have been for about three years a clerk in the employ of Mr. Joseph L. Levy, solicitor for complainant in the suit of John A. Brill *vs.* Third Avenue Railroad Company, in which United States

letters patent No. 478,218, granted to G. Martin Brill, and dated the 5th day of July, 1892, was sued on. I am very well acquainted with the details of that suit, and in a considerable measure with the type of truck described therein; and also the trucks of this type known familiarly as the "Bemis" truck which was used by the defendant in the Third Avenue case; and that made by the Peckham Motor Truck and Wheel Company, of Kingston, N. Y., and known as the "Peckham" truck. My familiarity in these matters comes from various services which I have rendered Mr. Levy for several years last past in connection with the above case, and from examination of these trucks on many occasions.

I depose on information and belief that during the year 1897, a notice was sent by Mr. John A. Brill, one of the above-named complainants, to the Peckham Motor Truck & Wheel Company,
97 requesting it to desist from infringing the above letters patent, and notifying it that as soon as Mr. Brill's rights under this patent *was* determined by suit, which he intended to bring in or about New York, he would proceed against it for infringement.

In response to this letter Charles H. Duell, Esq., who was then (in 1897) counsel for the said Peckham Company, placed himself in communication with Mr. Levy.

During the latter part of the year 1897, Mr. Duell and Mr. Levy were constantly in communication relative to these patents, and had several conferences relative thereto.

On the 12th of November, 1897, after several prior communications, Mr. Duell wrote a letter to Mr. Levy, of which the following is in part a copy:

"My Dear Mr. Levy: I have not yet fully completed my examination of the Brill patents to which you called my attention about a month ago. I have devoted a great deal of time and have had the assistance of others skilled in the art, because it has been my desire to make a full and fair investigation and with the idea of trying to adjust the differences between our clients, provided I found any valid claims in the Brill patents, which were infringed by my client's manufacture.

"While I have not been able to complete my report owing to inability to obtain copies of some foreign patents and publications, yet it has progressed so far that I have come to the conclusion that I must advise my client that it has a complete defense to any suits that may be brought upon any of the patents in question.

"While I should prefer to avoid litigation on account of the expense connected with it, and because my client has no desire to see patents overthrown, yet, if suits be brought, we are prepared to maintain our position at any cost.

"While the prior art is replete with anticipating and limit-
98 ing patents, with many of which doubtless you are familiar, yet in fairness I will call your attention to some of the many patents upon which I shall rely in case of suit.

* * * * * * *

"Referring to Brill patent No. 478,218, I would call your attention to the following patents:

Brill,	No. 373,640, Nov. 22, 1887.
Bemis & Pfingst,	" 410,871, Sept. 10, 1889.
Peckham	" 424,723, Apr. 1, 1890.
Robinson,	" 451,952, May 12, 1891.
Weber,	" 463,738, Nov. 24, 1891.
Bickford,	" 450,608, Apr. 21, 1891.
Ashenfelder,	" 93,945, Aug. 24, 1869.
Manier,	" 409,993, Aug. 27, 1889.
Hubbard,	" 457,740, Aug. 11, 1891.
Baker,	" 354,964, Dec. 28, 1886.
Taylor,	" 437,167, Sept. 23, 1890.
Hunter,	" 431,720, July 8, 1890.
Schoen,	" 255,200, Mar. 21, 1882.
Kirkley & Gray,	" 86,416, Feb. 2, 1869.
Steves.	" 64,378, Apr. 30, 1867.

"I suggest that you look at the specifications as well as the drawings of many of these patents.

* * * * * * *

Awaiting your further pleasure, I remain,
Cordially yours, C. H. DUELL."

I further depose on information and belief, and say, that all of the foregoing patents, except the patent to Hunter, No. 431,720, was before Judge Shipman and considered by him especially the patent to Manier, 409,993, in the said Brill *vs.* Third Avenue Case, and that all of those patents, with the exception of the said Hunter patent are part of the record of that case in this court, they forming part of defendant's record in that case entitled "Defendant's U. S. Patent Exhibits."

99 I further depose and say that on the 9th day of September, 1900, I went to Kingston, New York, and while there, I took a photograph of what appeared to be, and which I believe is a part of the shops of the Peckham Motor, Truck and Wheel Company, showing only a small portion of the building with a sign upon the top thereof which read as follows: "Peckham Motor, Truck and Wheel Company." Said photograph is hereto attached and marked Exhibit "X."

This sign also shows a miniature representation of the Peckham "Extra Long" truck.

On the 13th day of October 1900, I went to the building number 26 Cortland street, New York city, borough of Manhattan, New York, and upon the directory of said building appeared the following: "Peckham Motor Truck and Wheel Company, room No. 1320, E. Peckham room 1320." There appeared on said directory of said building no such names as the following: "Peckham Manufacturing Co." or "Peckham Truck Co." Upon inspecting the door of said room No. 1320, I saw thereon the following: "Peckham Motor Truck and Wheel Company, works, Kingston, N. Y."

I further depose that I have on several occasions within the last

two or three months past served papers in several suits in which said Peckham Company are directly or indirectly interested; and on the 19th day of September, 1900, I personally served papers in an action pending in the United States circuit court, eastern district of New York on said "Peckham Motor Truck and Wheel Co." which service was duly acknowledged.

I depose that from my service in Mr. Levy's office and from other sources of information that the regular and established place of business in the city, county and State of New York of the Peckham Motor Truck and Wheel Company is at 26 Cortland street.

100 I further depose that in the "Street Railway Journal" a monthly periodical published in the city of New York, N. Y. in the issue of October, 1900, and which is devoted to street railroad business, appears an advertisement on pages 266 and 267 thereof in which is shown cuts of the "Excelsior" "Standard" and "Extra Long" truck, exactly as is illustrated and entitled in the drawings attached to the Benjamin affidavit herein.

Upon the frame of said trucks, in said publication, directly over the axle boxes appears the words: "Manufactured by Peckham Motor Truck and Wheel Co., Kingston, N. Y." evidently cast in the metal.

CHARLES G. HENSLEY.

Sworn to and subscribed before me this 15th day of October, 1900.

BENEDICT S. WISE,
Notary Public, N. Y. Co.

[SEAL.]

(Here follows photograph marked p. 100.)

101 Circuit Court of the United States, Southern District of New York. In Equity.

JOHN A. BRILL and J. G. BRILL CO., Complainants,
vs.
PECKHAM MOTOR TRUCK & WHEEL CO. ET ALS., Defendants.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

Charles W. Benjamin, having been duly sworn according to law, deposes and says as follows:

I live in the city of Brooklyn, county of Kings and State of New York. I am about 43 years of age. I am by profession a mechanical draughtsman, and have been continuously engaged in making drawings for various purposes, including the Patent Office, both from the actual machines or structures themselves, and from prints or sketches, &c., for at least twenty-three years.

I have for a number of years last passed been familiar with the construction of our trucks, most especially for street car service, having made a large number of them for Patent Office drawings, which trucks were of the single, four-wheel, and of the pivotal type.

I have also become familiar with the type of truck shown, described and claimed in the patent to G. M. Brill, No. 478,218, dated July 5, 1892, I having made drawings in which this type of truck was illustrated on many occasions; and I have also made
102 drawings of the "Bemis" truck of this type which was involved in the suit of John A. Brill, complainant, against Third Avenue R. R. Co., defendant, in this district said drawings having been offered in evidence, and entitled "Complainant's Exhibits, Benjamin Drawings, Nos. 1, 2, and 3," in which suit I have testified to having made the drawings directly from the trucks; and as to their accuracy.

I am familiar with the type of truck in use by the Metropolitan Street Railway Co. and Third Avenue R. R. Co., operated on cars in the city of New York, borough of Manhattan, and county and State of New York, among which are trucks known as the "Peckham" trucks, by reason of the fact that I have seen "Peckham Motor Truck & Wheel Co., Kingston, N. Y." cast upon the axle-box yokes, or pedestals.

I further depose that on and between the 1st and 7th days of October, 1900, I visited the car shops of the Metropolitan Street Railway Co. and of the Third Avenue R. R. Co., in the city of New York, and there made drawings to scale of the three "Peckham" trucks, upon which I saw the words as above stated, examining the parts of the truck as closely as I could, where they were accessible, the car bodies being then upon them, and made drawings thereof.

I depose, upon information and belief, that these trucks are known in the trade, and I have verified this by comparison of the same with the advertisements of the Peckham Motor Truck & Wheel Co., in the various issues of the Street Railway Journal, a periodical published in New York city, and devoted to street railway interests, as the "Excelsior," "The Standard" and the "Extra Long."

The "Excelsior" is constructed with four spiral springs on each side extending between the axle-box frame and the upper chord of the truck or car sill, two of which are located at each side of the axle-box pedestals or yokes, and with a single elliptic spring at each end of the axle-box frame, extending between that end and the upper chord or car sill.

103 The truck thus constructed, I have entitled in the drawings by the name of "Excelsior."

The other sheet of drawings illustrates the "Extra Long" and "The Standard."

As to the car springs, "The Standard" has two spirals on each side seated on the axle-box frames, closely adjacent and within the pedestals, a spiral spring at each end of the frame, and an elliptic spring between the pedestals and the latter spital springs.

The "Extra Long" differs from the "Standard" in that the axle-box frame is extended out beyond the axle-box yokes or pedestals further than in the "Standard" and has two spiral springs at each end of the axle-box frame instead of one. In both "The Standard" and the "Extra Long," the posts passing through the spiral springs next adjacent the outer ends of the elliptic springs, pass downwardly through the axle-box frame extension, and carry a spiral spring thereon.

Instead of the original drawings which I have made on a very large scale, for the purpose of permitting them to be reduced without material loss of detail, I attach hereto, and which forms part of my affidavit, photolithographic copies of the same.

I depose that the photolithographic copies thereof are clear and accurate reproductions of the drawings.

However, as to the parts illustrated, I am familiar with them, and am positive that they are as I have illustrated them in the drawings.

(Signed) CHAS. W. BENJAMIN.

Sworn to and subscribed before me this 13th day of October, 1900.

BENEDICT S. WISE,
[SEAL.] *Notary Public, N. Y. Co.*

(Here follow drawings marked pp. 104 & 105.)

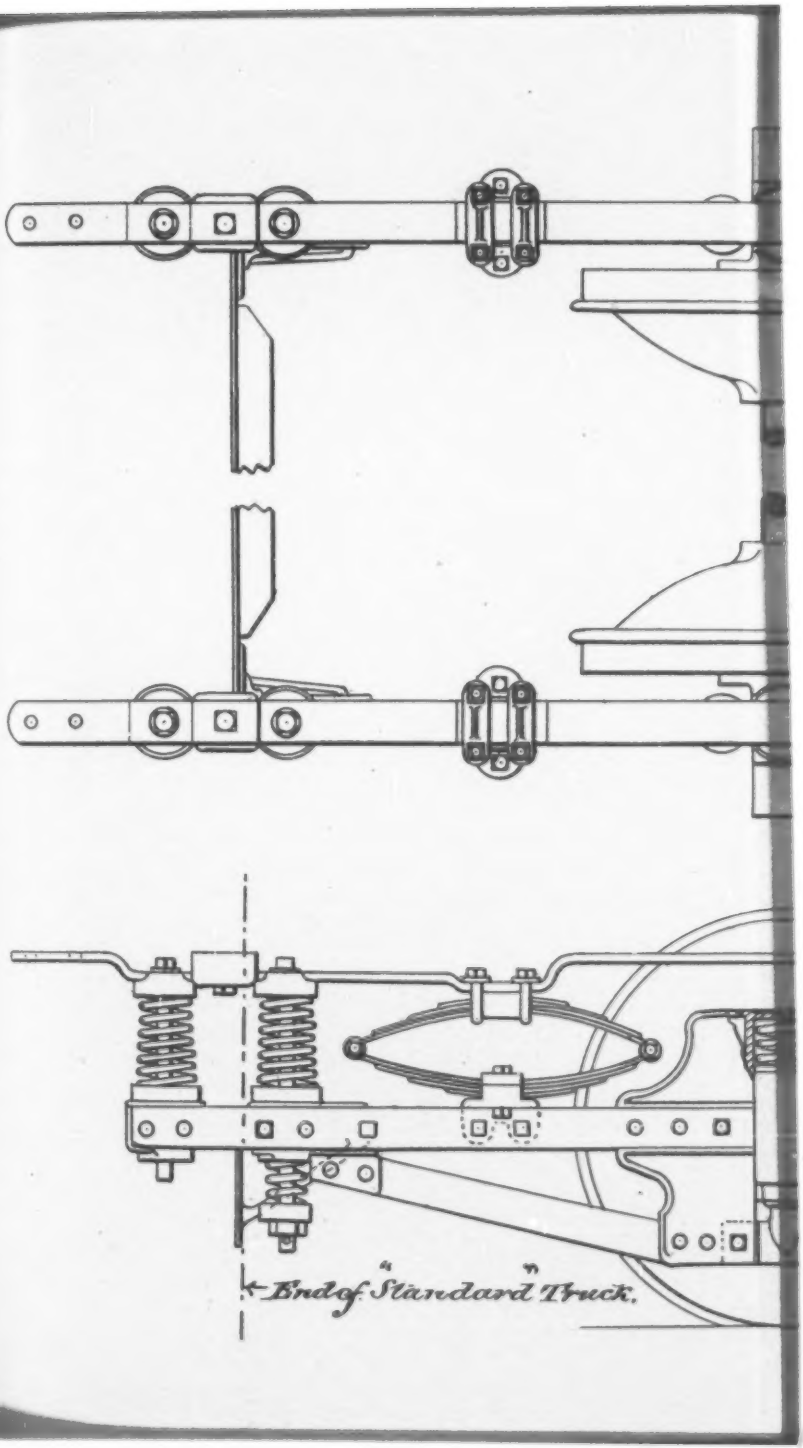
106 United States Circuit Court, Southern District of New York.
In Equity.

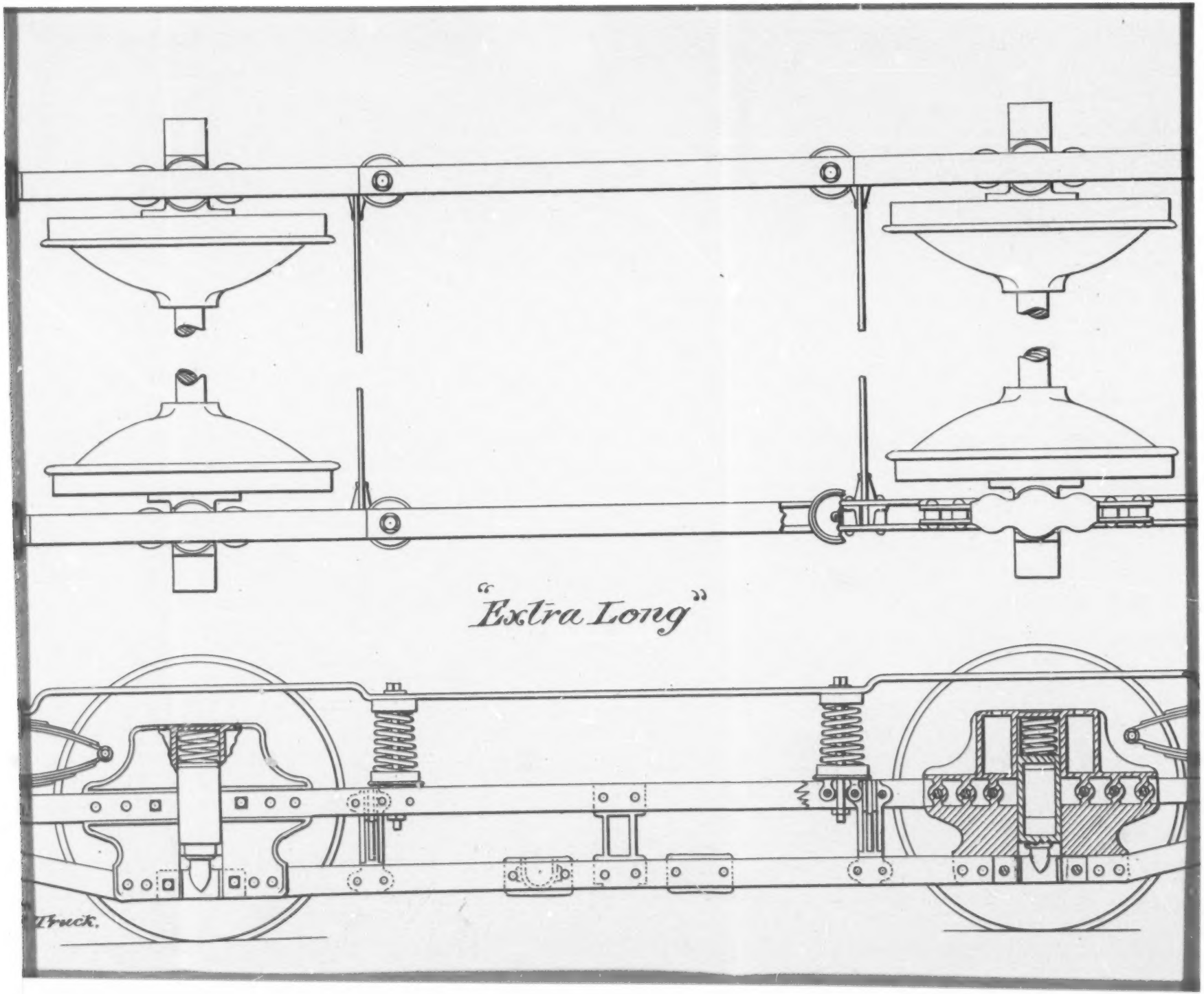
JOHN A. BRILL and THE J. G. BRILL COMPANY
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL CO. ET ALS.

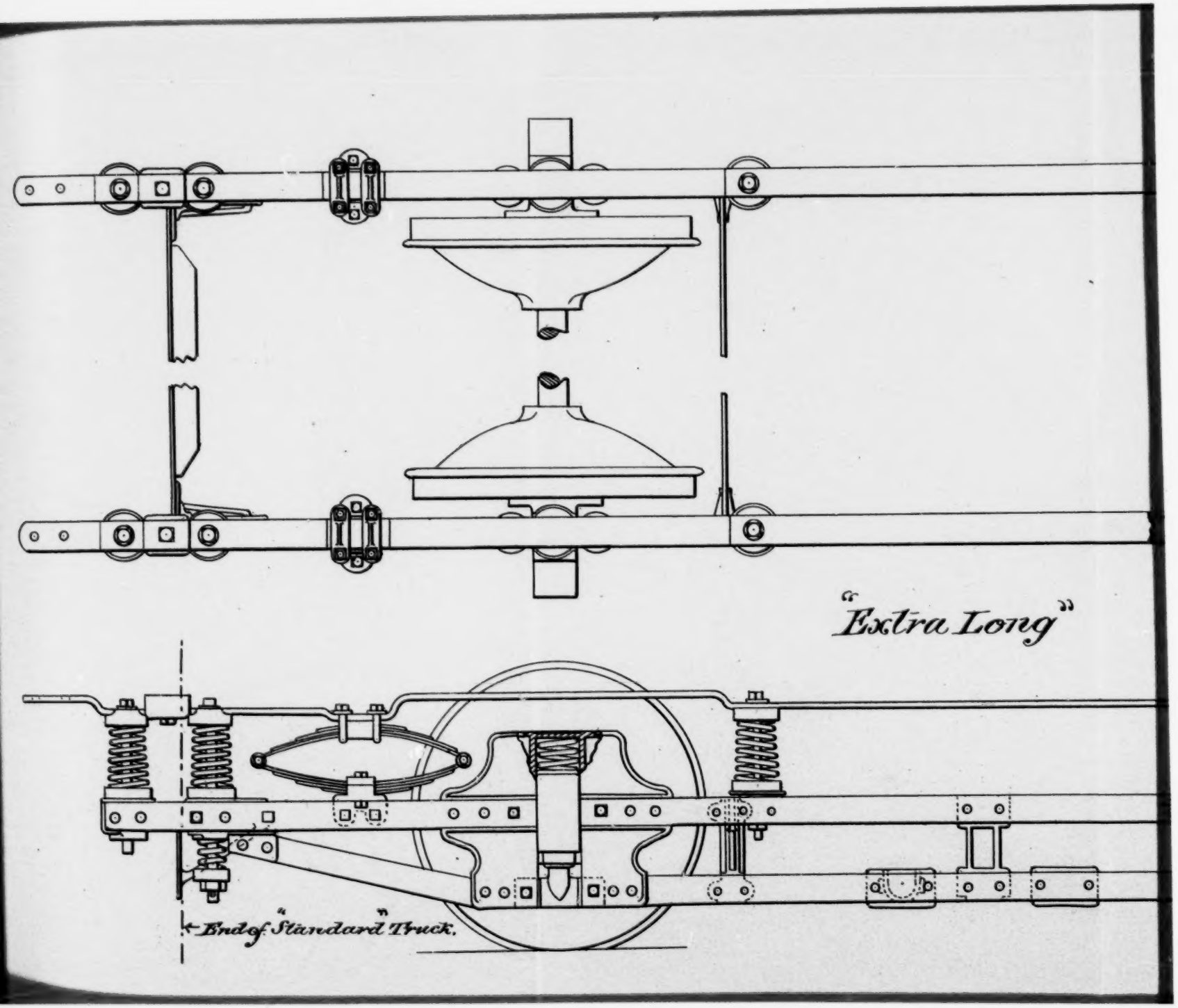
Affidavit of Joseph P. Livermore.

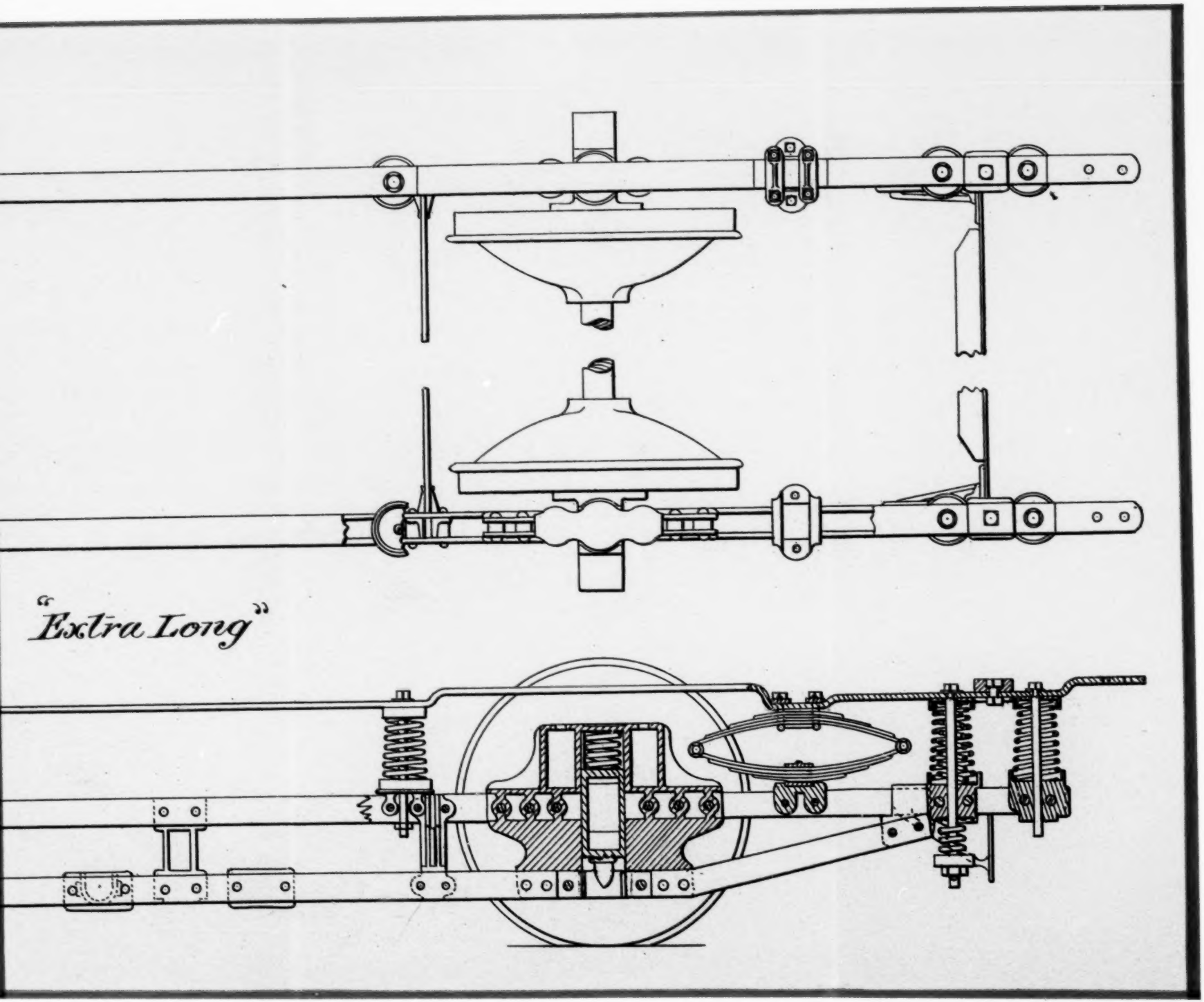
I am forty-five years old, reside in Cambridge, Massachusetts, and am a solicitor of patents and mechanical expert, and have my office at Boston, Massachusetts.

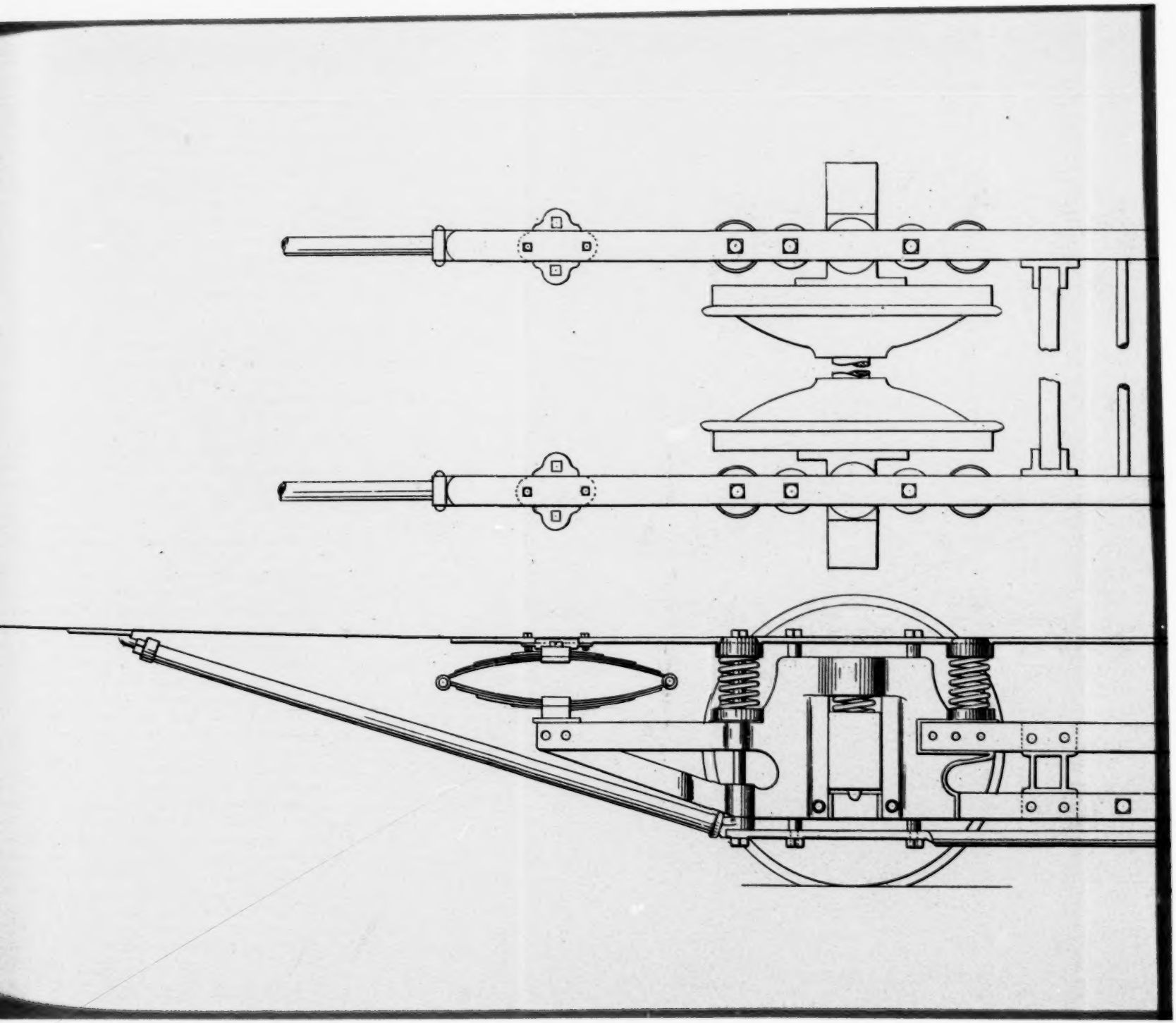
I studied mechanics and draughting at the Lawrence scientific

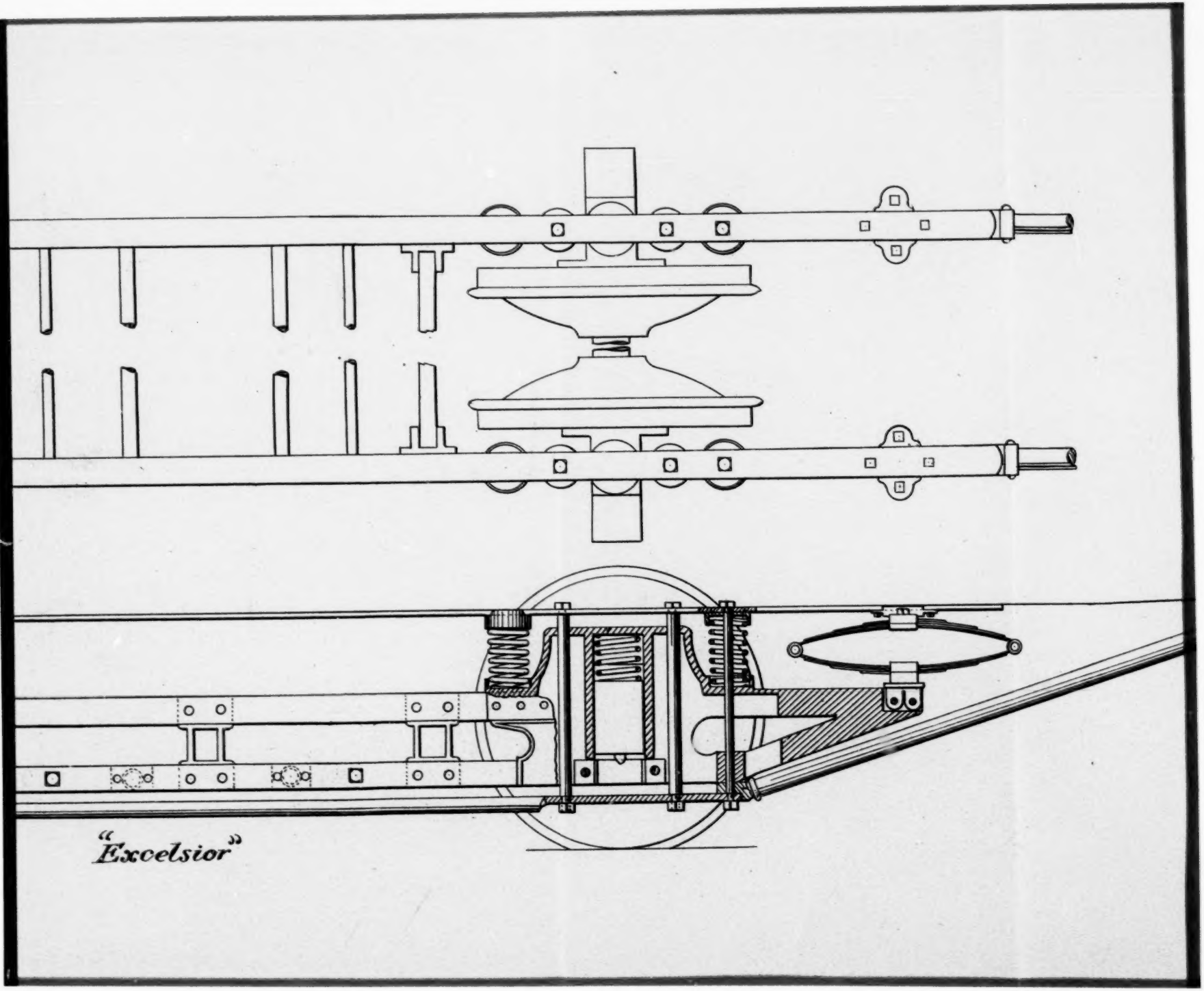

End of "Standard" Truck.


"Extra Long"
Truck.


"Extra Long"
← End of "Standard" Truck.


"Extra Long"





"Excelsior"

school of Harvard university, at which school I was graduated as civil engineer in 1877, having previously been graduated at Harvard college in 1875. I have been practising as solicitor of patents since 1879, and have constantly been called upon to examine machinery and apparatus of various kinds, and descriptions and drawings thereof, for the purpose of ascertaining and pointing out substantial resemblances and differences in construction and mode of operation of the contrivances therein embodied or represented. During the past twelve years or more, much of my time has been employed in the examination of letters patent for the purpose of advising with reference to the nature and scope of the invention therein set forth, and I have very frequently testified as expert in patent cases.

I am familiar with U. S. letters patent to George Martin Brill, No. 478,218, for car trucks, and I testified as expert on behalf of complainants in the case of John A. Brill *vs.* Third Avenue Railroad Company in the circuit court of the United States in the southern district of New York, which case was heard before his honor
107 Judge Shipman, who rendered an opinion in that case sustaining the validity of the patent and finding that claims 1, 2, 9, 10, 11, 12, 14 and 27 were infringed.

I have examined three cuts representing car trucks, printed on page 135 in the advertising matter of the Street Railway Journal of December, 1897 (vol. 13, page 12), said page bearing the name of "The Peckham Truck Co.," and the said three cuts or illustrations being accompanied by the designating words "Excelsior," "Standard," and "Extra Long," respectively.

I understand the construction and mode of operation of the trucks represented in said illustrations in all essential matters, and, for convenience, will hereinafter refer to them as the Peckham trucks, distinguishing the different constructions by the designating terms used in connection therewith in the advertisement.

I am of the opinion that the said Peckham "Excelsior" truck embodies essentially the construction shown and described in the Brill patent No. 478,218, above mentioned and referred to in claims 1 and 2 thereof, and that the Peckham "Standard" and "Extra Long" trucks clearly embody the construction which is literally set forth in claim 1, of said Brill patent, and also embody a substantial equivalent for the combination recited in claim 2, of said Brill patent, said claims 1 and 2 referring to the main invention forming the subject of the Brill patent, or describing the gist of that invention, as stated by his honor Judge Shipman in the case against the Third Avenue Railroad Company, the remaining claims forming the subject of that case being directed to subsidiary features of construction or arrangement not essential to the embodyment in a truck of the main or primary invention forming the subject of claims 1 and 2.

Before comparing each of the said Peckham trucks in detail with the structure shown and described in the said Brill patent, I will explain the nature of the invention forming the subject of the said

Brill patent and the construction and mode of operation of
108 the truck shown and described in the patent as a complete embodyment of the invention, being a construction by which the result sought to be attained by the invention is adequately produced.

The said patent shows and describes a car truck of the kind employed for street railway cars, and, as stated in the prefatory part of the specification, the main object of the invention "is to enable a truck of comparatively short wheel base to be used and to support a car body upon it, the ends of which overhang the end of the truck for some distance." Furthermore, it is stated that the "invention is also intended to overcome, in a measure, the end vibration or oscillation of the car body and movable portion of the truck to which the car is secured."

The invention is embodied in a structure in which the car body is supported upon a single four-wheel truck and is intended to overcome an objection to that type of truck which was greatly magnified when, by the introduction of electric motors or the cable system, it became desirable to use much larger car bodies than are commonly used when street cars are drawn by horses. By reason of the sharp curves which are required in street railways, it is impracticable to greatly lengthen the wheel base, that is to widely separate the two pairs of wheels which form a truck, and consequently when a long car body is used it must overhang or project a considerable distance at each end beyond the points of support provided by the wheels resting on the track. As a result of increasing the length of the car body with relation to the length of its base support, there is a tendency to increase the fore and aft oscillation or pitching movement of the car body upon its supporting springs, and as stated in the matter above quoted, the invention of the Brill patent in suit is intended to overcome, in a measure, that is to reduce, such end vibration or oscillation of the car body.

The construction by which the above-named object, that is, the effective support of a long car body on a relatively short
109 wheel base and the prevention of excessive oscillation of such car body, is attained, is as follows: Substantially directly upon the axle boxes, which rest upon the wheel journals, are supported, one at each side of the truck, rigid longitudinal side beams, comprising saddles which embrace and derive their support from the axle boxes, which side beams thus serve to connect and determine the position of the axle boxes at the two ends of the truck, and also extend lengthwise of the truck a considerable distance beyond the wheels at each end of the truck, thus affording a longer base of support for the car body than would be the case if the car body were supported directly upon the journal boxes, or upon saddles supported on the journal boxes. This pair of longitudinal side beams, which may or may not be connected together by tie rods or braces transverse to the truck, constitute what is called in the patent the "independent frame," as said frame rests substantially directly upon the journal boxes and does not partake of the vertical movement of the car body due to the action of the

springs that support the latter. The independent frame does not rest rigidly upon the journal boxes, but heavy springs or cushions are interposed between the journal boxes and the independent frame, the patent stating that the saddles are "supported on the axle boxes either rigidly, flexibly, or in such manner as to be capable of movement in the line of the axle." The car body is supported upon the independent frame through the intervention of springs of special character and arrangement, with a view to checking the end oscillation or pitching movement of the car body, while at the same time affording the usual elastic and easy support for the car body, by which the said car body and the occupants thereof are protected from the jarring and pounding that would be experienced if the car body were not spring-supported.

The car body rests upon the springs through the intervention of spring plates that seat upon the upper ends of the springs, and, as shown in the patent, said spring plates are secured to a rectan-
110 gular frame called the "upper chord," which is connected by "spring posts" fastened to said spring plates with longitudinal brace pieces below the independent frame, said upper chord, spring posts and braces thus constituting a frame upon which the car body is rigidly secured, said frame thus partaking of the vertical spring movement of the car body, and being called in the specification the "movable portion" of the truck structure. It is pointed out in paragraph beginning line 91, page 3, that the "upper chord" may be omitted without departing from the invention, in which case the spring plates and spring posts are secured directly to the sill of the car, which thus becomes itself the upper chord of the movable frame or movable portion of the truck structure.

The character and arrangement of the springs shown in the drawings of the Brill patent as employed in combination with the structural elements of the truck which I have thus far described are as follows: At each side of each saddle that embraces and is supported on the corresponding journal box there is a spiral spring interposed between the saddle and the spring plate above mentioned, upon which the car body is rigidly secured, there being, therefore, at each side of the car two spring plates, one over each axle box, and four spiral springs, two between each spring plate and corresponding saddle, the said set of eight springs for the car being called in the patent the axle-box springs. The length of base of support of these axle-box springs is therefore substantially equal to the length of wheel base and is insufficient to properly support a car body which is very considerably longer than the wheel base, and, as stated in paragraph beginning with line 76, page 1, of the specification of the patent in suit, attempts have been previously made to overcome this objection by employing additional springs of the same character as the axle-box springs, interposed between the extensions of the independent frame of the truck and the car body, between the wheels and the extreme end of the car. It is also pointed out that such construction has not been found to work satisfactorily and that the objection is overcome by the employment of springs of a dif-
111 ferent character from the axle-box springs between the car body and the extensions of the independent frame, said addi

tional springs being elliptical springs, which are slower in their action than the axle-box spiral springs and thus serve to neutralize the longitudinal vibration or pitching movement of the car body, which becomes very excessive and objectionable when the springs that support the car body are all of the same character.

That portion of the invention of the patent in suit which consists in the combination with the frames of the truck structure thus far described, of the sets of springs of a different character arranged as described, to neutralize the tendency toward longitudinal oscillation of the car body upon said supporting frame, is what I understand is referred to in claims 1 and 2 of the patent in suit.

The subsidiary features which I have above referred to may be briefly described as follows: One of the said features forming the subject of claims 9, 10, 11 and 14 of the Brill patent, consists in so arranging and proportioning the springs that the slow-acting elliptical springs will not come into play until after the axle-box springs have begun to compress, and the action of the spirals in lifting the car body is continued after the elliptical springs have ceased to act. Another feature forming the subject of claims 12 and 27 resides in the details of construction of the parts by which the elliptical springs are connected and engaged with the frames with which they co-operate.

Referring now to the three Peckham trucks, I will first describe the characteristics of construction common to all three, by reason of which I regard all of them as embodying the subject-matter of claim 1 of the Brill patent, and will thereafter refer to the differences in detail of construction or arrangement exhibited in the three Peckham trucks, and give my reason for regarding such variations as not constituting a substantial departure from the subject-matter of claim 2 of the Brill patent.

112 Each of the said Peckham trucks is a single four-wheeled truck for supporting a car body which is very long in proportion to the length of wheel base of the truck. The said truck comprises a pair of rigid longitudinal side beams, constituting an "independent frame" having saddles which embrace and are supported on the axle boxes through the intervention of short stout springs which give a slight yielding movement of the independent frame with relation to the axle boxes, although said frame is independent of the movement of the car body, which is spring-supported upon it. The said side beams of the independent frame have longitudinal extensions beyond the axle boxes at both ends of the truck, thus affording a longer base of support for the car body than would be the case if the car body were supported directly upon the journal boxes, or upon saddles resting on the journal boxes.

The car body is supported upon the independent frame through the intervention of springs of the same character as the springs shown and described in the Brill patent, as explained in my last answer. That is, there are two sets of springs differing in character and in the quickness of action, so that each tends to give a different period of oscillation of the car body from the other, and thus the effect of one set of springs tending to produce a constantly increas-

ing amplitude of oscillation if the car should be acted upon by a series of impulses, such, for example, as in passing over the consecutive rail joints, is neutralized by the other set of springs, which are of such character as not to produce a period of oscillation in harmony with the said impulses.

The two classes of springs employed in the Peckham trucks are of the same specific kind as those shown in the Brill patent, one class being composed of spiral springs so arranged as to have the weight of the car body distributed over them, and the other springs are elliptical springs, which are slower in action than spiral springs, and are placed between the car body and the end extensions of the side beams of the independent frame, where they are most
113 effective in tending to check vibrations and thus to prevent the car body from acquiring a longitudinal oscillation or galloping movement.

All three of said Peckham trucks, therefore, embody the construction; that is, the combination and arrangement of elements shown and described in the patent in suit, and literally recited in claim 1 thereof, namely, the independent, stationary, or spring-supporting frame, itself supported upon the running gear (that is, the wheels and axle boxes), said frame having saddles and end extensions beyond the said saddles; and a movable frame having like extensions (*i. e.*, the sill, spring plates, posts, and longitudinal brace), and spiral and elliptical springs between said frames and the elliptical springs being interposed between the extensions at the ends of the independent frame and the corresponding overhanging extension of the movable frame.

Referring now to the specific construction embodied in each of said Peckham trucks, it will be observed that the one represented in the cut, entitled "Excelsior," has the springs in the same arrangement as shown in the drawings of the Brill patent; that is, the spiral springs are interposed between the saddles of the independent frame (one at each side of each axle box), and the spring plates of the movable frame, while the elliptical springs are arranged between the end sections of the independent frame and the overhanging part of the movable frame, being the endmost springs of the entire set of springs supporting the car body.

In the Peckham truck illustrated in the cut, designated by the name "Standard," there is a variation from this arrangement, so far as relates to the location of the spiral springs. Instead of having a pair of spiral springs over each axle-box saddle, the spiral springs at the inner side of the axle box, that is, toward the middle of the length of the car, are a little further removed from the axle-box saddles than in the Peckham "Excelsior" truck and as shown in the drawings of the Brill patent, while the spiral springs at the outer sides of the axle boxes are placed at the extreme outer end
114 of the extension of the independent frame, being just outside of or beyond the elliptical springs towards the end of the car.

In the Peckham truck shown in the cut designated by the name "Extra Long," the arrangement is the same as in the "Standard," except that a pair of spiral springs instead of a single one is

used at each extremity of the extension of the independent frame, and thus outside of the elliptical springs.

This variation in the arrangement of the spiral springs which is exhibited in the "Standard" and "Extra Long" Peckham trucks is, in my opinion, a wholly immaterial departure from the construction shown and described in the Brill patent and referred to in claim 1 thereof.

Claim 1 is as follows:

"1. In a motor truck, the combination with a stationary frame supported upon the running gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and elliptical springs located between the extended sections of the said rigid frame and the movable frame, substantially as described."

It is to be observed that in claim 1, the specific arrangement of the spiral springs (*i. e.*, their location or distribution along the space between the independent and movable frames) is not specifically referred to. Furthermore, the specific arrangement or distribution of the spiral springs shown in the drawings of the Brill patent is not essential to the proper co-action between the spiral springs and the elliptical springs for attaining the desired result of neutralizing the tendency to oscillation and therefore preventing the car from acquiring an excessive longitudinal oscillation or rocking or galloping movement. Clearly, therefore, the Peckham trucks embody the substance of the Brill invention and are literally covered by the language of claim 1 of the Brill patent.

Claim 2 of the Brill patent is as follows:

"2. In a truck, a spring-supporting frame supported upon a running gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, substantially as described."

In claim 2, the spiral springs are referred to as located between the saddles and movable frame. The saddles and stationary frame constitute substantially a single rigid structural element, and it is immaterial whether the springs rest directly upon the saddles or upon the frame adjacent to the saddles. It is only necessary that they should be distributed sufficiently lengthwise of the independent frame and car body to form an efficient and stable support for the car body. For this reason, I regard the arrangement embodied in the Peckham "Standard" and "Extra Long" trucks, in which the inner spiral springs are arranged on the independent frame close beside, instead of directly upon, the axle-box saddles, and the outer spiral springs are arranged at the extreme ends of the independent frame, as being a substantial equivalent for the arrangement recited in claim 2, so far as the following elements, viz., spring-supporting frame supported upon the running gear by saddles, and the movable frame, and interposed spiral springs—are concerned, and said Peckham trucks clearly contain these elements

in combination with the elliptical springs, which combination is the characteristic or novel feature of the Brill truck. Furthermore, both such arrangements of the spiral springs between the independent frame and the car body were well known in the art prior to the time of the Brill patent in suit, the subject-matter of claim 2 of which depends for its novelty upon the combination of such arrangement of frames and spiral springs with elliptic springs, which, by reason of their difference in action, neutralize the effect of the spiral springs in setting up an oscillatory movement of the car body, without impairing their effect in cushioning the car body from the shock to which the wheels are subjected.

116 It is clear that both the Peckham "Standard" and "Extra Long" trucks have elliptic springs, combined with the spiral supporting springs, and arranged as shown in the Brill patent over the end extensions of the independent frame, and thus near the ends of the car body, where they will be effective in checking the rocking movement of the car body. It seems obvious that there is no reason for adopting the elliptical springs in these Peckham trucks other than in order that they may co-operate with the spiral springs in order to prevent excessive endwise oscillation or galloping movement of the car body, the same as is done by the like combination of elliptical and spiral springs in the specific arrangement shown in the drawings of the Brill patent.

Except for the immunity against excessive endwise oscillation, the spring system composed entirely of spiral springs (which was well known long prior to the time of the Brill patent in suit, and in both of the arrangements illustrated in the Peckham "Excelsior" and Peckham "Standard" trucks) was as effective in cushioning the car body and making an easy-running car as the combinations of spirals and ellipties which characterize the spring system of the truck of the Brill patent in suit.

In this connection, it is to be observed that in the Peckham "Standard" and "Extra Long" trucks there is an additional spiral spring near each end of the independent frame but below the same, so that it acts with a spring resistance to oppose upward movement of the adjacent ends of the car. This was an expedient that had been devised prior to the date of application of the Brill patent in suit, with a view to diminishing the oscillation of car bodies by resisting their upward movement, but which has been found, in practice, to be ineffectual for accomplishing the desired result. The employment of the elliptic springs in the Peckham truck in addition to the underlying checking springs, as I will call them, that I have last referred to, is in itself a strong indication that the said underlying checking springs are wholly inadequate to pre-

117 vent excessive oscillation of the car body, if they are not, indeed, wholly without any effect whatever in that direction.

For the above reasons, I am of the opinion that the variation in distribution of the spiral springs along the length of the car exhibited in the Peckham "Standard" and "Extra Long" trucks, as compared with the specific arrangement employed in the Peckham "Excelsior" truck, and shown in the drawing of the Brill patent in

suit, does not constitute a substantial departure from the construction forming the subject of the said Brill patent, and that all of the Peckham trucks clearly embody essentially the construction recited in claims 1 and 2 of the Brill patent, having substantially the same combination and arrangement of elliptic springs and spiral springs and related parts operating in the same manner and producing the same result.

I have not overlooked the fact that in the Peckham trucks the elliptic springs are connected with the upper chord or movable part of the truck frame so that the car body cannot rise off from the elliptic springs, as might be the case in the specific construction shown and described in the Brill patent. This feature is material only in connection with the subject-matter of the claims relating to the subsidiary features of the Brill invention before referred to. The connection of the elliptic springs with the upper chord or car body does not impair their action in conjunction with the spiral springs in neutralizing the tendency of the car body to acquire an oscillatory movement of considerable amplitude, as the agency of said elliptic springs, in accomplishing this result, is mainly developed in the compressive action of said springs, due to the downward movement of the overhanging end of the car body, as it tends to initiate the oscillatory movement, and in the subsequent rising movement of the car body, due to the expansion of the springs which were excessively compressed in the downward movement.

The downward movement of one end of the car body below the point at which its weight is in equilibrium with the force of
118 spring tends to produce an upward movement at the other end of the car body, relieving the springs at that end momentarily of a portion of the weight that they normally carry. With the old form of spring support, successive repeated impulses would cause so great a rocking movement of the car that the springs at one end might be practically entirely relieved of weight and the car body actually rise from some of them. In such event a spring, if connected at its upper end with the car body might be momentarily subjected to an expansive strain.

The specific construction shown in the Brill patent in which the elliptic springs are not attached to the car body precludes the possibility of said elliptic springs being subjected to an expansive strain, under any circumstances; but their effect in checking the vibration of the car is such that it would never attain such amplitude as to raise either end of the car body wholly off from the springs or subject the springs to expansive strain if said springs were so arranged as to be normally compressed under the normal load of the car (*i. e.*, without reference to any special shock affecting one end thereof in advance of the other end). It is therefore only when the car is subjected to some unusually great disturbance, as in passing over a very bad rail joint or possibly over some obstacle on the track, that the springs at one end might be subjected to expansive strain which would effect the elliptic springs in the Peckham construction, but would not effect them in the specific construction shown in the Brill patent.

In what may be regarded as the normal operation of the elliptic springs in preventing a pitching movement of the car from acquiring a rhythmical action and consequently increasing in amplitude, the springs when connected with the car body, as in the Peckham trucks, have the same effect as when not so connected, as is the case in the construction shown in the Brill patent.

Furthermore, this effect is the same, whether the spiral springs are all included in the space between the elliptic springs, as in the
119 construction shown in the drawings of the patent in suit, and embodied in the Peckham "Excelsior" truck, or whether a portion of said spiral springs are located at the extreme ends of the stationary frame and are thus outside of the elliptic springs, as in the Peckham "Standard" and "Extra Long" trucks.

I am familiar with the state of the art relating to the subject-matter of the Brill patent in suit, as offered in evidence on behalf of defendants in the case against the Third Avenue Railroad Company, before referred to. A very large number of patents was offered in evidence in that case, only comparatively few of which have, so far as I can see, any bearing whatever upon the subject-matter of the Brill patent in suit, and none of which contain any suggestion whatever of the employment of two classes of springs acting in conjunction with one another to support the car body in such manner as to fully cushion the movements of the same and to prevent excessive longitudinal vibration or rocking movement of the car body upon the single supporting truck of relatively short wheel base.

I will add that I know nothing in the prior art which has any closer bearing upon the subject-matter of the Brill patent than the patents and publications put in evidence on behalf of the defendants in the case against the Third Avenue Railroad Company. For convenience, I will collect the patents of the prior art into groups and make such comparison as may be necessary with the Brill patent in suit, referring to matters which are common to all of the patents in the group under consideration, and thereafter will quote the opinion of his honor Judge Shipman as to the individual patents which he regarded as sufficiently pertinent to warrant some comment on his part.

Pivotal Trucks.

Steves, No. 64,378, April 30, 1867.
Kirkly & Gray, No. 86,416, Feb. 2, 1869.

The above two patents, as well as the illustration Fig. 66, 67 and 69 in Knight's Mechanical Dictionary, and an illustration
120 in the Railroad Gazette of 1888 show pivotal trucks such as are employed where the car body is supported upon two trucks, one at each end, said trucks having a pivotal or swiveling movement about a vertical axis to accommodate themselves to the curves in the track. Such trucks usually comprise in their organization various springs and frequently several kinds of springs, as, for example, in the Kirkly & Gray patent there are rubber springs F and spiral springs K, while in the illustration, of a similar truck

in the Railroad Gazette, there are elliptical springs and spiral springs. These different springs are not employed for the purpose of checking oscillation, and afford no suggestion of a combination or arrangement of such springs by which oscillation could be checked.

The different classes of springs in this structure are not interposed between the same frames so as to act conjointly thereon, but one set of springs supports one frame or element of the structure, while the other set supports another frame or element of the structure, each set of springs carrying or sustaining substantially the whole weight of the car body. When the car body has an independent support near each end, as is the case where pivotal trucks are used, there is no tendency to set up the rocking or galloping movement that caused so much difficulty with cars supported upon a single truck, and there is nothing in these pivotal truck structures, which, so far as I can see, has any bearing or throws any light whatever upon the invention forming the subject of the Brill patent in suit. This class of structure was not referred to by his honor Judge Shipman, as it evidently has no pertinence or relevancy whatever to the Brill invention.

Springs.

Vose, No. 199,945, February 5, 1878.
Vose, No. 214,328, April 15, 1879.
Vose, No. 214,329, " " "
Vose, No. 330,445, November 17, 1885.
Vose, No. 347,281, August 10, 1886.
121 Vose, No. 348,251, August 31, 1886.
Vose, No. 350,174, October 5, 1886.
Vose, No. 351,819, November 2, 1886.
Schoen, No. 255,200, March 21, 1882.
Diehl, No. 296,272, January 15, 1889.
Howard, No. 396,694, January 22, 1889.

The above patents were cited in the case against the Third Avenue Railroad Company mainly as bearing upon the subject-matter of claims 9, 10, 11, and 14 of the patent in suit. They merely show springs so arranged that additional springs are brought into action only after the springs first operated upon have been to some extent compressed; but they have, in my opinion, no bearing whatever upon the subject-matter of the Brill patent, and certainly none upon the subject-matter of claims 1 and 2 thereof. They were referred to by his honor, Judge Shipman, only in connection with claims 9, 10, 11, and 14, and were held not to anticipate even the subject-matter of those claims.

Simple Single Four-wheeled Trucks.

Baker, No. 354,964, December 28, 1886.
Brill, No. 357,811, February 15, 1887.
La Mothe, No. 402,169, April 30, 1889.
Peckham, No. 417,937, December 24, 1889.

The above patents merely show the early construction adopted in street cars where the car body was not of excessive length and was supported upon the springs themselves sustained directly upon the axle boxes or saddles resting upon the latter. This construction may be regarded as the basis of the numerous improvements that were subsequently made in trucks with a view to enabling longer car bodies to be successfully carried upon single four-wheeled trucks.

The Brill patent included in the above list was referred to in the opinion of his honor, Judge Shipman, but only with reference to claims 9, 10, 11, and 14, his finding being that "the Brill patent is unimportant in this connection."

122 *Four-wheeled Trucks with Additional Frame not Serving as an Extended Spring Base for the Car Body.*

Brill, No. 432,115, July 15, 1890.
Bemis, No. 373,635, Nov. 22, 1887.
" No. 405,691, June 25, 1890.
" No. 413,890, Oct. 29, 1889.
Bemis & Pfingst, No. 402,890, May 7, 1889.
" " No. 410,871, Sept. 10, 1889.
" " No. 449,382, Mar. 31, 1891.

The above patents show trucks having an independent frame connecting the axle boxes, but not utilized as a substantially extended or lengthened spring base for the car body, which is supported upon said frame by springs of one class (spiral springs), substantially the same as if no independent frame connecting the axles were employed. It is clear that none of these patents has any substantial bearing upon the subject-matter of claims 1 and 2 of Brill patent in suit, as hereinbefore explained by me.

None of these patents were individually mentioned or referred to in the opinion of his honor Judge Shipman, they being evidently too remote from the subject-matter in issue to require any consideration.

Trucks Having Independent Frame Constituting an Extended Spring Base for the Car Body.

Ashenfelder, No. 9,345, August 24, 1869.
Brill, No. 373,640, November 22, 1887.
Brill, No. 418,441, December 31, 1889.
Manier, No. 409,993, August 27, 1889.
Manier, No. 412,640, October 8, 1889.
Bird, No. 426,031, September 9, 1890.

Taylor, No. 437,167, September 23, 1890.
Bickford, No. 450,608, April 21, 1891.
Robinson, No. 451,952, May 12, 1891.
123 Hubbard, No. 457,740, August 11, 1891.
Peckham, No. 419,876, January 21, 1890.
Peckham, No. 424,723, April 1, 1890.
Peckham, No. 464,253, December 1, 1891.
Peckham, No. 471,061, March 15, 1892.

The above patents all show a construction employing a substantially rigid frame supported upon the axle boxes and extending beyond the same lengthwise of the car, so that said frame is longer than the wheel base of the car, and affords an extended base or support for the springs upon which the car body rests. This construc- undoubtedly gives a more stable support to the car body than when the latter is supported only over the axle boxes, and it was expected by the inventors in many cases to overcome, in a measure, the oscillating or rocking and galloping motion of the car.

This entire series of patents, however, exhibits no substantial advance over the Ashenfelder patent of 1869 in the matter of devising a spring system that would effectively check the tendency to excessive rocking motion or endwise oscillation of the car. None of said patents show the combination of two classes of springs arranged as in the Brill patent in suit to neutralize one another in the tendency to amplify the rocking motion of the car. Springs of various kinds, however, were used for supporting the car body, such, for example, as the rubber springs shown in the Ashenfelder patent, and Brill patent No. 418,441, the elliptical springs shown in the Taylor patent, and the spiral springs which were most commonly used.

The Manier patent No. 409,993, was given considerable attention in the case against the Third Avenue Railroad Company, because in said patent both spiral springs and elliptical springs were shown as the support for the car body, and it was urged on behalf of defendants that the Manier patent discloses the conjoint use of both kinds of springs in one structure.

124 The Manier patent and others in this group that were especially referred to by the defendant in the Third Avenue Railroad Company case, so far as they are relevant to the subject-matter of claims 1 and 2, were thus dealt with in the opinion of his honor Judge Shipman:

"Upon the question of the novelty of the invention described in claims 1, 2, 11, 12, and 14, the defendant's expert puts great stress upon letters patent No. 409,993, dated August 27, 1889, to Benjamin F. Manier. One object of Manier was to prevent oscillation, and to accomplish it he employed an extended spring base and mounted the body springs forward of the axles. He said that oscillation was noticeable in cars mounted on trucks wherein the body springs are on both sides of the axles and near the centre of the truck, and that the mounting of the body springs forward of the axles, he considered a special feature of his invention. The springs, or the kind of springs, which he was to use are no part of his invention. He says

'Preferably, I employ spiral springs G, as shown in Fig. 1 for supporting caps 1, but if desired, the elliptic springs *g*, could be employed, as shown in Fig. 3, or other forms of springs may be used as found convenient and desirable, the particular form of spring not forming part of present invention.' Manier's invention was entirely apart from that of Brill, and had no conception of its character. The only ground upon which the expert can place his theory is that in Fig. 3 the two different forms of springs, spiral and elliptic, are shown, and upon this drawing the entire superstructure of anticipation is built. Manier's invention was not designed nor adapted nor used for the performance of the function performed by Brill's device, nor was the way to accomplish Brill's result suggested by Manier's invention.

(Topliff *vs.* Topliff, 145 U. S. 156.)

* * * * * * *

"The expert referred in his direct examination only to the Manier, Bird, Diehl, Brill and Vose patents 'as showing most
125 clearly constructions which I' (he) 'considered as the best anticipations of the alleged invention of the patent in suit, and particularly to the subject-matter of claims 1, 2, 9, 10, 11, 12, 14, 17, and 27.' His attention was afterwards called by the defendant to nineteen other patents and in regard to which he testified. Four of them were issued after the date of the Brill application. The remaining fifteen have no bearing upon the question of anticipation and were commented upon, probably, to have an affect upon the question of invention. I do not think that any of them calls for remark, except the Edgar Peckham patent, No. 419,876, dated January 21, 1890. In this car truck, between the end portions of the lower beams and the car sill, suitable springs were interposed, either spiral springs or a semi-elliptic spring which was disposed transverse to the car body and rests with each end secured to the top of the lower beam. The upper beams are supported on spiral springs on the axle boxes. This construction, although it contains the name semi-elliptic spring, has not the conjoint action of the patented combination, nor does it perform the function of the Brill device."

The subsequent patents to Peckham, prior to the issue of the Brill patent, confirm this view, as they do not indicate any recognition on the part of Peckham of any advantage derivable from the use of a semi-elliptic spring at the ends of the car, nor indicate any growth or tendency in the direction of utilizing two different classes of springs in the spring support of the car body upon the independent truck frame for any purpose whatever.

Peckham patent No. 424,723 shows a truck having an extended spring base with spiral supporting springs at each side of the axle boxes and additional similar spiral supporting springs at the ends of the extensions of the truck frame. This patent, therefore, shows merely the utilization of the extended spring base to afford a longer, and thus more stable, support for the car body than when supported
only directly over the wheels, being in this respect sub-
126 stantially like the old Ashenfelder patent of 1869 and the earlier Brill patents, Nos. 373,640 and 418,441.

Peckham patent No. 464,253 similarly shows only a truck having an independent frame constituting an extended spring base upon which the car body is supported wholly by spiral springs distributed throughout the length of said spring base. This patent also shows in Fig. 1, a check-spring at U, which tends to resist upward movement of the car body from the spring frame, but is referred to in the specification as a support for the end extensions of the independent or spring-supporting frame.

Peckham patent No. 471,061 shows a similar construction embodying the independent truck frame constituting an extended spring base upon which the car body is supported wholly by spiral springs distributed throughout the length of said spring base. It is to be observed that the arrangement of the spiral springs in these last two patents is much the same as in the Peckham "Standard" and Peckham "Extra Long" trucks, except, as shown in these patents, that spiral springs are used at each side of the axle box, while, as shown in the "Standard" and "Extra Long" trucks, the spiral springs at the outer sides of the axle boxes over the end extensions are omitted, and elliptic springs are added.

The Street Railway Journal for October, 1889, which was put in evidence by defendants in the Third Avenue Railroad case, shows, on page 291, a cut entitled "Peckham's Non-oscillating Truck for Street Cars." This shows merely a truck having a truck frame supported on the axle boxes and extended outside of the axles so as to give an extended spring base upon which the car body is supported through the intervention of four spiral springs on each side of the car, namely, one at the outer extremity of each extension of the truck frame, and one just within each axle box, the four being about equidistant from one another. The description states that this arrangement must entirely prevent any rocking motion, and the car ought to ride as smoothly as any steam railway pas-
127 senger coach. Experience has demonstrated, however, I believe, that this arrangement of springs on an extended spring base does not, in fact, prevent longitudinal oscillation, although Manier and many of the early inventors or patentees in this art made similar statements to the effect that the extended spring base would prevent longitudinal oscillation of the car body.

The inadequacy of an extended spring base to prevent oscillation of the car body is evidenced by a comparison of Peckham's later trucks ("Excelsior," "Standard," and "Extra Long") with the one shown in the Street Railway Journal in October, 1889, prior to the grant of the Brill patent in suit, which I will call the Peckham, 1889, truck.

It will be seen that the spring arrangement shown in the Peckham, 1889 truck is practically identical with that shown in the later "Standard" truck, except that the latter has, in addition to the all spiral springs of the former, elliptic springs over the end extensions of the stationary truck frame, and the other later trucks, "Excelsior" and "Extra Long," while exhibiting a variation in the arrangement of the spiral springs from that shown in the 1889 Peckham truck, are essentially different therefrom in that they also contain elliptic

springs co-operating with the spiral springs and arranged on the end extensions of the stationary frame or extended spring base of the truck.

From a comparison of these four structures, viz., the Peckham 1889, truck, (prior to the Brill patent) and the three later Peckham trucks, it seems obvious that the specific arrangement of the spiral springs *i. e.* their distribution along the truck frame, is immaterial, and that the employment of spiral springs alone is inadequate for checking or preventing the longitudinal oscillation of the car (although perfectly efficient, so far as the performance of all other functions of a spring support for a car body is concerned), and that the combination of the elliptic springs with the spiral spring, as shown in the three later Peckham trucks, is in direct accordance with
128 the instruction of the Brill patent in suit, and that there is no reason for employing the elliptic springs in this combination other than that of availing of Brill's discovery that the excessive oscillation of the car body experienced when springs of one character only were employed, could be substantially obviated by the conjoint action of such elliptic springs with the spiral springs that had previously been used.

The careful consideration of the various contrivances disclosed in this art prior to the Brill invention thus clearly shows that the Brill invention was entirely novel, and that although various inventors had been for many years seeking to devise some adequate means for preventing the excessive longitudinal oscillation of cars, no substantial advance was made in that direction up to the time of the invention of the Brill patent in suit.

JOSEPH P. LIVERMORE.

UNITED STATES OF AMERICA.

COMMONWEALTH OF MASSACHUSETTS, *Suffolk*, } *ss:*

BOSTON, *October* 11, 1900.

Then personally appeared the above-named Joseph P. Livermore, and made oath that the foregoing affidavit, by him subscribed, is true.

Before me,

HENRY J. LIVERMORE,
Notary Public.

[SEAL.]

129 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL ET AL.
vs.
PECKHAM MOTOR TRUCK & WHEEL COMPANY ET ALS.

I have given another affidavit in this case. I have examined a drawing of a truck marked with the word "Excelsior," and also another drawing marked "Extra Long," the lower figure of which

showing the truck mainly in side elevation has at the left-hand end, a broken line opposite which is inscribed "End of 'Standard' truck."

The drawing marked "Excelsior" shows in detail the construction of the truck represented in the cut designated "Excelsior," referred to in my other affidavit as the "Peckham Excelsior truck."

The drawing marked "Extra Long" shows in detail, the construction of the truck represented in the cut designated "Extra Long," referred to in my other affidavit, and if the portion at the ends corresponding to the portion beyond the line inscribed "End of 'Standard' truck," were removed, the remaining structure would be the same as that represented in the cut designated "Standard," referred to in my other affidavit. These drawings represent the same structures as were represented in the several cuts referred to in my other affidavit, said structures being referred to by me as the Peckham Excelsior, Standard and Extra Long trucks, respectively, and all that I have said in my other affidavit as to the construction and mode of operation of said Peckham trucks and their relation to the subject-matter of the Brill patent in suit applies equally to the trucks represented in the drawings referred to in the present affidavit.

JOSEPH P. LIVERMORE.

130 UNITED STATES OF AMERICA.

COMMONWEALTH OF MASSACHUSETTS, *Suffolk*, } ss:

BOSTON, *October* 11, 1900.

Then personally appeared the above-named Joseph P. Livermore and made oath that the foregoing affidavit, by him subscribed, is true.

Before me,

HENRY J. LIVERMORE,
Notary Public.

[SEAL.]

131 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and J. G. BRILL COMPANY, Complainants,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY, EDWARD Peckham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.

To the above defendants and each of them:

Please take notice that a bill of complaint has been this day filed in the above-entitled case in the circuit court of the United States for the southern district of New York, and that upon the said bill of complaint, the affidavits of Joseph P. Livermore, John A. Brill, George Martin Brill, Charles G. Hensley, Charles W. Benjamin, Samuel M. Curwen, Vincent C. Anderson, James Fagan, John N. Akarman, Harvey M. Littell and exhibits and letters patent No.

478,218, dated July 5, 1892, to George Martin Brill, in said bill referred to, and upon the record in the case of John A. Brill *vs.* The Third Avenue Railroad Company, pending in the United States circuit court for the southern district of New York (copies of which bill, affidavits, exhibits, letters patent, and of said record, are delivered to you herewith), counsel on behalf of complainant will, on the 19th day of October, 1900, at the opening of the court or as soon thereafter as counsel can be heard, make an application to the said court for a preliminary injunction until the final hearing of the said cause, restraining you and each of you the Peckham Motor
132 Truck and Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long, John H. Bickford and Theodore Spore, and your officers, agents, attorneys, servants, and workmen, or either of them, from infringing upon claims one (1) and two (2) of the said letters patent referred to above and in the bill of complaint herein.

New York, October 15, 1900.

JOSEPH L. LEVY,
Solicitor for Complainants, 206 Broadway, Borough of Manhattan, New York City, N. Y.

FRANCIS RAWLE, Esq., *Of Counsel.*

133 Circuit Court of the United States, Southern District of New York. In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL CO., EDGAR PECKham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.

To the above-named defendants:

Please to take notice that the within is a copy of the following, mentioned in the notice of motion in the above-entitled suit, which is hereby served upon you.

"Defendant's record: Defendant's U. S. patent exhibits; Complainant's record; opinion of N. Shipman, in the case of John A. Brill *vs.* Third Avenue R. R. Co."

Respectfully, JOSEPH L. LEVY,
Solicitor for Complainants, 206 Broadway, Borough of Manhattan, N. Y. City.

Dated New York, October 1, 1900.

134 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL CO., EDGAR PECKHAM, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.

CITY, COUNTY, AND STATE OF NEW YORK, *ss.*:

Charles G. Hensley, being duly sworn, deposes and says as follows: I am of lawful age; and am a clerk in the office of Joseph L. Levy, Esq., 206 Broadway, New York city, borough of Manhattan, county and State of New York, solicitor for complainants in the above-entitled action.

That on the 15th day of October, 1900, at 2 o'clock p. m. on said day, together with George H. Holmes, a United States deputy marshal, I went to the office of the Peckham Motor Truck & Wheel Co., at 26 Cortlandt street, city of New York, borough of Manhattan, county and State of New York, and there served upon George H. Bowers, an adult in charge of said office, I knowing the said office to be the office of the Peckham Motor Truck & Wheel Co., and the said George H. Bowers having said so in response to my inquiry, and that the said George H. Bowers was in charge of the office of said company, the following papers, to wit:

Copy of the bill of complaint in this action, with a copy of the patent in suit thereto attached; a copy each of the affidavits of Joseph P. Livermore; John A. Brill, with exhibits
135 & 136 mentioned in said affidavit; G. M. Brill; Charles G. Hensley, with the exhibit mentioned in said affidavit; Charles W. Benjamin, with the exhibits mentioned in said affidavit; Samuel M. Curwen, Vincent C. Anderson, James Fagan, John N. Akarman, Harvey M. Littell, and the record of the case of John A. Brill *vs.* Third Avenue Railroad Co., pending in the United States circuit court, southern district of New York, consisting of a copy of complainant's record, defendant's record, defendant's book of patent exhibits, and a copy of the opinion of N. Shipman, J.

That at the same time, George H. Holmes, deputy U. S. marshal, served a subpœna upon the Peckham Motor Truck & Wheel Co., by showing the original to and serving a copy upon the said George H. Bowers; that upon the 15th day of October, 1900, I filed in the office of the clerk of the U. S. circuit court, southern district of New York, the original bill in this case, duly verified and signed, to which was attached a copy of the patent in suit; and that thereupon I caused subpœnas in proper form to be issued to each of the defendants in this case.

CHARLES G. HENSLEY.

Sworn to before me this 15th day of October, 1900.

BENEDICT S. WISE,
[SEAL.] *Notary Public, N. Y. Co.*

137 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL CO., Complainants,
vs.
PECKHAM MOTOR TRUCK & WHEEL CO., EDGAR Peckham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants. } In Equity.

To the Peckham Motor Truck & Wheel Co. and the above-named defendants, 28 Cortlandt St., New York city, borough of Manhattan, New York.

GENTLEMEN: Please to take notice, that I shall read the affidavit of Charles G. Hensley, verified this 22nd day of October, 1900, and shall refer to the patents therein mentioned, at the hearing of the motion for the preliminary injunction on the 26th day of October, 1900, at the opening of said court, or as soon thereafter as counsel can be heard.

A copy of the affidavit and a copy of the patents referred to is herewith served upon you.

New York, Oct. 22, 1900.

Respectfully,

JOSEPH L. LEVY,
Solicitor for Compl'ts.

138 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL CO., Complainants,
vs.
PECKHAM MOTOR TRUCK & WHEEL CO., EDGAR Peckham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants. } In Equity.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

Charles G. Hensley, being duly sworn, deposes and says: I have been a clerk in the employ of Joseph L. Levy, Esq., solicitor for complainants herein, for a number of years last past, and am of lawful age. I depose that upon Mr. Levy's instructions some time ago I requested Mess. Wilkinson & Fisher, attorneys and counsellors at law, residing at Washington, D. C. (the Mr. Fisher of said firm having been Assistant Commissioner of Patents), to search the records of the Patent Office and to make a list, and to procure copies of all patents granted to Edgar Peckham, or patents assigned to him or to the Peckham Motor Truck & Wheel Co. of Kingston, N. Y. That said Mess. Wilkinson & Fisher did make such search, reported to me that it had been carefully done, and that the list of patents so furnished me was a true and accurate one.

From my knowledge of the ability of the said Mess. Wilkinson & Fisher to make the search required, and their statement to me that such report disclosed every one of the U. S. patents
139 granted to Edgar Peckham or assigned to him or to the Peckham Motor Truck & Wheel Co., I depose on information

and belief, that the U. S. patents as appended in the following list, are all of the United States patents granted to Edgar Peckham or assigned to him or to the Peckham Motor Truck & Wheel Co., for non-pivotal car trucks, wherein either spiral or elliptical, or spiral and elliptical springs are employed for the support of the car body thereon.

That is to say, I depose on information and belief, that the following list is a true and accurate statement of all patents granted to Edgar Peckham or assigned to him or to the Peckham Motor Truck & Wheel Co., for that class of truck, to date, and that there are no others:

419,876, June 21, 1890.
419,877, June 21, 1890.
419,878, June 21, 1890.
424,723, April 1, 1890.
440,189, Nov. 11, 1890.
458,749, Sept. 1, 1891.
464,253, Dec. 1, 1891.
471,061, Mar. 15, 1892.
467,896, Jan. 26, 1892.
555,526, Mar. 13, 1896.
563,685, July 7, 1896.
555,530, Mar. 3, 1896.
599,474, Feb. 22, 1898.

I attach hereto a complete set of patents as referred to in the above list.

CHARLES G. HENSLEY.

Sworn to and subscribed before me this 22d day of October, 1900.

HENRY L. SMITH,
[SEAL.] *Notary Public, N. Y. Co.*

140 DEF'TS' AFFIDAVITS.

Affidavit of Edgar Peckham.

United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY ET AL., Complainants,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY *et als.*, Defendants.
} In Equity.

CITY AND COUNTY OF NEW YORK, *ss*:

Edgar Peckham, being duly sworn, deposes and says as follows:

I am the president of The Peckham Motor Truck & Wheel Company named as one of the defendants in the above-entitled suit and am also named as a defendant therein. I began the business of manufacturing trucks for electric street railways during the year 1888, and have been in said business continuously ever since, either

on *on* my own account and under my own name, or as president of the Peckham Street Car Wheel and Axle Company and its successor, the Peckham Motor Truck and Wheel Company. The last-named company is a corporation organized under the laws of the State of New York and does a business of about eight hundred thousand dollars a year. It has its factories at Kingston, New York, occupying about three acres of ground and is now engaged in enlarging their capacity by building new works, which together with the yard room, when completed, will occupy about six acres of ground. This company at present employs about two hundred and fifty hands
141 and produces about twenty-five hundred car trucks in the course of a year. When the enlargement of the works now in progress is completed, its producing capacity will be about four thousand trucks a year. Though this company produces a few snow-plows and power brakes for application to electric street cars, its principal business is and has been the manufacture of electric street railway trucks, and this company is one of the largest manufacturers of electric street railway trucks in the world.

When I entered into the manufacture of electric street railway trucks, the question of the substitution of electric for horse cars was practically in its infancy. No electric street railway car truck then existed which was satisfactory. Everything was in the experimental stage. I became very much interested in this art, and devoted myself wholly to earnest endeavor and experiment to discover what was necessary to a perfect truck of that kind, and the means required to produce such a truck.

The problem was complex. Because of the narrow streets and sharp turns incident to street railways, it was necessary that the cars to turn those curves should have a very short wheel base. By wheel base I mean the distance from where one wheel rests upon the track to where the next wheel on the same side touches the track. At the same time, it was obvious that in electricity a source of power was available which could furnish each car many horse power. From this fact followed the commercial necessity of lengthening the bodies of the cars, so that at the same expense to be able to carry much larger numbers of passengers on each car than was practicable when horses alone were the motive power. Since the wheel base was necessarily left unchanged, the ends of these long cars projected far beyond the wheels, so that when the car was in motion the car body pitched and oscillated to a very great degree, endangering the connection of the car with the track as well as its electrical connection with the trolley wire.

142 The problem was then twofold; first, to check the oscillation of the car body both transverse and endwise (galloping), and second, to support these overhanging ends of the car platform, so that they should not break. The solution of the problem appeared to be the extension of the spring base; that is, to extend the truck frame and to place supporting springs under the car body not only in the neighborhood of the wheels as heretofore, but out near the extremities of the extended ends of the car and truck frame; and to meet the weakness of the car platform I devised and intro-

duced my cantilever truck built upon the principle of the cantilever bridge, which I have used ever since in all my four-wheel street-car trucks with slight modifications. At this time I supposed that I was the first to realize the necessity of the extended spring base and to put it into practice, though I found out afterwards that there was some question whether one Manier had not anticipated me by a very short time.

As I said before, my first extended spring base trucks were made upon the cantilever principle, the same principle as that upon which the spans of the cantilever bridges are constructed. I applied for a patent for this construction on September 17th, 1889, which was issued January 21, 1890, and was numbered 419,877. These trucks were connected with the car bodies by spiral springs arranged as follows, one set on each side of the car. Two were located between the wheels, and either one or two, according to the length of the car body, at each end of the truck frame outside of the journal boxes and near the end of the car platform, as shown in my patent No. 419,877, dated January 21, 1890, and applied for September 17th, 1889.

In this construction, to overcome the endwise oscillation or galloping movement, I carried bolts through the springs, which bolts were firmly secured to the car platform and to the lower side of
143 the lower chord of the truck frame, thus tying the ends of the car down to the truck frame so that it could not rise. This device overcame the galloping movement to a very considerable extent, but practice showed the connection to be almost too rigid. I then inserted first rubber cushions, and subsequently spiral springs, between the under side of the lower chord of the truck frame and the head of these bolts, so as to cushion the bolts against the under side of the truck frame and thus relieve these binding bolts of some of their rigidity. This was an improvement and of course speedily suggested the substitution of spiral springs for the rubber cushions in that location. My construction then was bolts or stays securely fastened to the car body near its ends, which passed down through the lower chord of the truck frame; so surrounded with spiral springs that there was one spiral spring around the bolts between the car body and the upper chord of the truck frame to cushion any undue approach of these parts, while there was at the same time a spiral spring surrounding the stays or bolts below the lower chord of the truck frame so as to cushion any tendency of the car body to rise from the truck frame.

I adopted this method in 1890 or 1891 and I have relied upon it from that day to this to overcome the galloping motion in all of the electric street railway car trucks which I or the Peckham Street Car Wheel & Axle Company or the Peckham Motor Truck & Wheel Company have made. It will be seen that this method of overcoming the galloping motion must have great advantages over any system which depends upon any difference in rhythm of action between elliptical and spiral springs as is claimed in complainants' construction, for in my construction the moment my car begins to gallop, one end of the car body must increase its distance from the

truck frame. This motion is cushioned by the spiral spring
144 around the stays or bolts under the lower chord of the truck frame. Should the motion exceed the compressibility of this spring, it will be seen that the car body, which then becomes rigidly fastened or bolted to the upper chord of the truck frame, can rise no more without lifting the weight of the truck frame, car wheels, axles and the motor. This, in practice, it cannot do and consequently the galloping motion of the car body is so confined by the proper adjustment of the spring upon the bolts or stays underneath the lower chord of the truck frame, that the galloping motion can never exceed negligible limits. Thus it will be seen that I have attacked the problem of galloping from one direction, while Mr. Brill, complainants' patentee, attacked it from a wholly different, and, as I have always believed, mistaken direction.

I am thoroughly familiar with the construction of the car truck shown in the patent in suit and also with its practical use. I am also familiar with and have repeatedly inspected and examined the car trucks furnished to the Third Avenue Railroad Company by the Bemis Car Box Company, and which were adjudged to be an infringement of the patent in suit in the suit of Brill *vs.* The Third Avenue Railroad Company, brought in this district and recently decided by Judge Shipman in favor of the Brill Company. So far as the arrangement of the elliptical and spiral springs was concerned, these Third Avenue Railroad trucks were a Chinese copy of the truck shown and described in the patent in suit. Those Third Avenue Railroad trucks, 150 to 175 in number, were in service under the closed cars on the Third Avenue railroad in New York city for about three years. From personal observation I know that these trucks were so defective in stopping the galloping motion and the wear and tear of the road-bed and the car bodies, that when the Third Avenue railroad changed its motive power from cable to electricity, these trucks were all thrown into the scrap-iron heap,
145 while about 175 trucks of my construction, which had already been in use under the cable cars of the Third Avenue railroad for two years, were changed from cable to electricity and are now in use under the electric cars of the Third Avenue railroad to this day, to the entire satisfaction of that railroad, as I am informed by their manager.

Complainants' method and my method are wholly and fundamentally different in principle. My first car trucks embodying this construction had between the car body, or the equivalent member of the construction, and the extended truck frame only spiral springs. I soon found that these spiral springs did not give as much resistance as was desirable to lateral and lengthwise motion of the car body in reference to the truck frame. This was due to the fact that the bearing of the bolts or stays passing from the car body to the truck frame was so short below and extended so far above that motion laterally and longitudinally was unavoidable. To overcome this, and for no other reason whatsoever, I, as early as my patent No. 419,876, applied for September 2d, 1889, and issued January 21, 1890, introduced a semi-elliptical spring and shortly

after full elliptical springs on each side of the car between the car body or its equivalent, and the upper chord of the truck frame, in place of one set of the spiral springs. I tied these elliptical springs rigidly above to the car body, or its equivalent, and below to the truck frame. The width of these springs gave a good solid connection between the parts and did away with the pivotal lateral and longitudinal motion of the car body in reference to the truck frame incident to the employment of all spiral springs. I repeat that it was for this reason, and for no other, that I substituted the elliptical springs for one set of the spirals in my construction.

In the patent in suit it is stated in reference to the spiral
146 springs interposed between the car body, or its equivalent, and the truck frame,

"the spiral springs which are supported by or about the axle boxes normally take the weight of the car."

Neither I, nor the Peckham Street Car Wheel & Axle Company, nor the Peckham Motor Truck & Wheel Company, have ever made or sold a car truck in which spiral springs are used in conjunction with elliptical springs in which the spiral springs "normally take the weight of the car." The weight of the car has always and invariably almost wholly been thrown upon the elliptical springs which have always been the strongest springs and the controlling springs.

I also note at line 65, page 1 of the patent in suit these words:

"Between the extended sections of the upper chord and the side beams I place elliptical springs which preferably extend longitudinally of the truck and which are so disposed that they will not be brought into action until the weight of the load on the axle box begins to depress said springs abnormally. Then the elliptical springs begin to act and assist the spiral springs in resisting the pressure of the load."

Neither I, nor the Peckham Street Car Wheel & Axle Company, nor the Peckham Motor Truck & Wheel Company, have ever made or sold a car truck of this construction. As said before, the greater part of the weight of the car body has always rested upon and been supported by the elliptical springs and the spiral springs have been subsidiary.

Again I notice at page 1, line 101 of the patent in suit these words:

"And an adaptation of my invention consists in making
147 the axle-box springs comparatively weaker and slower than has formerly been done and to place elliptical springs in such a way as to assist the spiral springs in resisting the abnormal pressure of the car and in equalizing the end oscillation of the same, the elliptical springs being slower in their action than the spiral springs."

Neither I, nor the Peckham Street Car Wheel & Axle Company, nor the Peckham Motor Truck & Wheel Company, have ever built or sold a car truck of any such construction. As said before, our elliptical springs have always been stronger than the spiral springs and have always been rigidly secured to the car body, or its

equivalent, and to the truck frame, and have always been in constant action as long as the car body rested upon the truck frame.

Again I find at line 121 of page 2 of the specification of the patent in suit these words:

"To this end I supplement the axle-box springs by placing elliptical springs of slower action between the extended portions or sections of the side beams and upper chord and so arrange them in respect to each other that the elliptical springs will not come into play until after the axle-box springs have begun to compress, and the action of the spirals in lifting the car body is continued after the elliptical springs have ceased to act. The devices which secure the elliptical springs between the side beams and the upper chord are devised to permit one end of the upper chord to approach the side beams and the other end to be elevated, as will occur in the act of oscillation, one set of elliptical springs being compressed, while the other remains in its normal condition."

148 Neither I nor either of the companies aforesaid, have ever made or sold any truck of any such construction. As said before, the elliptical springs have always been rigidly tied to both the car body or its equivalent, and to the truck frame, so that it was impossible for one set of coil or spiral springs to be compressed while the other set of elliptical springs was out of action. Our car bodies, or their equivalents, and the truck frames, have always been so tied together by the bolts passing through the spiral springs and the attachment of the elliptical springs that both sets of springs, the elliptical and the spiral, were compelled to act in unison.

In brief, all the car trucks made and sold by this deponent and the aforesaid companies have always and invariably been made, as far as the features covered by the complainant's patent in suit are concerned, in an entirely different manner and working upon an entirely different and opposed principle.

I am very much surprised at the statement made in the affidavit of Mr. John A. Brill, *i. e.*:

"I believe, from a very general knowledge of the trucks in use all over the United States which I have acquired in my business, that fully ninety per cent. of all the trucks under four-wheel cars now in use in the United States on all its street railways, are constructed in accordance with the invention described and claimed in the letters patent in suit."

I have had occasion to become familiar with the trucks in use on all of the largest electric street railways in this country, and outside of the 150 to 175 trucks furnished by the Bemis Car Box Company to the Third Avenue Railroad Company of New York, I do not know of 200 of the trucks shown and described in the patent in suit in use anywhere. And I cannot but conclude that Mr.

149 Brill, in making this statement, had in mind the car trucks made and sold by me and my companies to the trade to the number of about ten thousand, and must have included them in his estimate. The Brill Company discontinued the manufacture of the truck shown and described in the complainant's patent in suit, as I am informed and believe, about three years ago, and in place

of trucks embodying the arrangement of the springs as shown in this complainant's patent in suit, they have manufactured and sold and advertised trucks with half-elliptical springs constructed on an entirely different principle from that of the patent in suit. In this new Brill construction a semi-elliptical spring is used rigidly fastened to the end of the truck frame and also to the end of the car sill or its equivalent, practically after my method hereinbefore described.

Of the above ten thousand car trucks of the four-wheel pattern made and sold by me and my companies, the tendency to gallop has been met and overcome in all by the method and construction I have hereinbefore described as that I and my companies have always used. Among such four-wheel trucks that we have so made and sold I might specify the following:

Over 500 to the Metropolitan Street Railway Company of New York City, about 200 of which are now running on the Broadway cable road, some of which have been in service night and day for over eight years;

About 250 to the Third Avenue Railroad Company system, which are also still in service;

200 to the Long Island electric railways;

Over 1,200 to the Brooklyn Heights Railway Company;

200 to the Coney Island and Brooklyn Railway Company of Brooklyn;

150 to the old Atlantic Avenue Railway system;

150 to the New Jersey Electric Railway Company;

100 to the Hoboken Street Railway Company of Hoboken;

150 1,200 to the Union Railway Company of Philadelphia;

250 to the Baltimore Street Railway Company of Baltimore;

400 to the Cincinnati Street Railway Company of Cincinnati; and many others, all of which trucks, as far as I know, are still in service and give satisfaction.

I would state that I have examined the drawing marked "Excelsior truck," annexed to the affidavit of C. W. Benjamin on behalf of the complainant upon this motion, and that said drawing is inaccurate at least in the following respect, probably because the part was more or less concealed so that it escaped Mr. Benjamin's observation.

In those drawings the bolts or stays are shown secured to the car body or its equivalent at their upper heads, and passing thence downward through a spiral spring and through the upper and lower chords of the truck frame, underneath which they are shown as rigidly secured. Neither I nor the aforesaid companies have ever made any such construction. The lower part of these bolts or stays have always been surrounded by a spiral spring which abutted against either one of the chords of the truck frame in such a way that when the car body or its equivalent, tends to rise from the truck frame as in galloping, this spring will be compressed and the motion checked as hereinbefore described. This construction is apparent, though somewhat obscurely, in the illustration of the

Excelsior car truck shown in the Peckham advertisement from the Street Railway Journal of December 1897, which is annexed to the affidavit of John A. Brill on the part of the complainant, and marked "Exhibit I."

My attention has been called to the following passage in the affidavit of Mr. Livermore forming part of complainant's papers herein. This passage occurs in the middle of page 12 of
151 that affidavit (bottom p. 69, of printed copy) and reads as follows:

"In this connection, it is to be observed that in the Peckham 'Standard' and 'Extra Long' trucks there is an additional spiral spring near each end of the independent frame but below the same, so that it acts with a spring resistance to oppose upward movement of the adjacent ends of the car. This was an expedient that had been devised prior to the date of the Brill patent in suit, with a view to diminishing the oscillation of car bodies by resisting their upward movement, but which has been found, in practice, to be ineffectual for accomplishing the desired result."

I notice this passage confirms what I have said about my method of overcoming the galloping motion as far as that it was devised before the date of the application for the patent in suit. But where Mr. Livermore got the information that my method had "been found in practice to be ineffectual for accomplishing the desired result" (the galloping motion), I am at a loss to conceive. His statement is altogether contrary to the facts, as is apparent from the fact that I and my companies have made and sold eight thousand or more trucks of this construction, all of which, as far as I know, are still in use, and in regard to the efficiency of which in overcoming the galloping motion, I have had no complaints from those using them; and this is notwithstanding that these sales have extended over some eight years or more, so that there has been ample time for complaint if there was any cause for it.

EDGAR PECKHAM.

Subscribed and sworn to before me this 25th day of October, 1900.

WM. O. SHAUGHNESSY,
[SEAL.] *Notary Public, N. Y. Co.*

152 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE JOHN G. BRILL COMPANY *et al.*, Complainant-,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY *et al.*, Defendants.
} In Equity.

Affidavit of George L. Fowler, on Behalf of the Defendants, to Oppose Motion for a Preliminary Injunction.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

George L. Fowler, being duly sworn, deposes and says that he is by profession a mechanical engineer, of 45 years of age, having his office at No. 53 Broadway, in the city of New York.

I am a graduate of Amherst college, and afterwards learned the machinist's trade in the shops of the Miltimore Car Wheel Company, Arlington, Vermont; then was chief draughtsman in the locomotive department of the New York Central & Hudson River railroad; then occupied the same position on the Flint & Pere Marquette railroad in Michigan; and then superintendent of the A. F. Bartlett Company in Saginaw, Michigan, builders of saw-mill machinery and steam-engines.

In 1887 I was United States commissioner to the Paris exposition of railway appliances, held that summer in Paris, France, and afterwards was superintendent for The Peckham Street Car Wheel
153 and Axle Company, one of the defendants in this suit, and organized, purchased machinery and installed its factory at Kingston, New York, for the manufacture of street railway car trucks.

On severing my connection with the Peckham Street Car Wheel & Axle Company in 1890, I opened an office as consulting engineer in New York city, where I have since remained.

I am a full member of the American Society of Mechanical Engineers, and an associate member of the American Railway Master Mechanics' Association.

My present work consists for the most part in designing and superintending the construction of special machinery, adapted to machine-shop and railway purposes, and also for testing various railway appliances to ascertain the actual operation of parts as they work when in ordinary and extraordinary use, such for example as the testing of air brakes, and the determination of the stresses that are put upon the various portions of cars and locomotives while in actual service, and especially in the calculation of the proper proportion for springs that are to be used under cars and locomotives, and afterwards testing the same to ascertain whether the springs as constructed agree in their operations with previous calculations as to how they should behave. These springs include all the principal kinds of springs such as are known as the coil, spiral, elliptic and semi-elliptic.

Mr. Peckham, to my knowledge, entered into the manufacture, or began to experiment with a view to the manufacture, of street railway car trucks about the time that electricity began to be substituted in the place of horses as a motor power for street railways. The galloping motion arising from the use of a long car body upon the short wheel base, which it was rendered necessary to retain in use because of the sharp curves incident to street railway construction, was one of the first problems which presented itself for
154 our solution. While horses were used as a motor power, car bodies were made about sixteen feet long; when electricity was being substituted for the horses as a motor power, it was found that the electric power was so far in excess of the horse-power that it was advisable for commercial reasons to largely increase the capacity of the cars. But while doing this it was necessary, for the reasons already given, to adhere to the short wheel base of the horse car. This gave a car supported on a short wheel base with overhanging ends. Any irregularity in the track or shifting of the load caused these ends to oscillate up and down, which constituted the galloping motion above referred to.

Mr. Peckham, from the first, assailed this problem on certain principles; and as far as I know, and I think I do know, he has met this contingency in the street railway car trucks which he has since manufactured, in the same way, and by the employment of the same principles of construction.

This principle consisted in extending out the ends of the truck frame approximately to the length of the car body, or its equivalent, and introducing between the car body and the truck frame spiral springs in such a way that if the one end of the car body descended toward the truck frame, as it did in the process of galloping, the spiral springs at that end of the car would be compressed and resist and arrest the motion. Bolts were passed through these end springs, and were fastened at the top to the car body, or its equivalent, and at the bottom to what is known as the cantilever extension of the truck. This bolt passed loosely through a hole in this cantilever extension, and was free to move up and down therein to a limited extent. This downward motion was limited only by the extent to which a spring could compress. This upward motion was limited by the extent to which it was deemed advisable to allow the car to rise above its normal position in relation to
155 the truck frame. It was found that the limitation of this upward movement, due to the sudden striking of the nut of the bolt against the cantilever projection of the truck, brought the car to such a sudden standstill as to produce a disagreeable jar that was an annoyance to the passengers riding therein.

The first change made to modify this sudden jar was accomplished by the introduction of a rubber spring, put between the bottom of the cantilever projection and the lower end of the aforesaid bolt. This modified the suddenness of the check to the upward motion to a certain extent, and was evidently a step in the right direction to check this upward motion gradually.

This substitution of rubber was followed by a further substitution

of a spiral spring beneath the cantilever, which construction, to the best of my knowledge and belief, has been followed in all trucks since constructed by the company, of which Mr. Peckham is president.

This spiral spring so modifies the upward motion that it is gradually checked before any jar occurs. But it is evident that the upward motion is still limited by the distance through which the car can pass before closing the spring, at which point the connection between the car and the cantilever extension becomes rigid, and the car to rise further must lift the truck and all parts attached thereto.

It will thus be seen that in the galloping motion of the car, one end goes down while the other rises; and that the downward motion at the one end is resisted by the springs between the truck frame and the car body, while the upward motion at the other end is resisted by the springs beneath the truck frame, both of which tend to counteract the tendency of the car to gallop.

It will thus be seen that the galloping motion can be limited by the adjustment of the lower springs, which can thus be regulated, so that after the car has risen to a certain extent, the connec-
156 tion between it and the truck frame becomes rigid and it can go no further without lifting the truck frame and its attachments, and this in practice it was incapable of doing.

As Mr. Peckham's trucks were made and sold while I was with him, the springs interposed between the car body and the truck frame and its extension, were all spiral springs.

Inasmuch as the car body rested upon the spiral springs, the bolts passing through the latter being loose at the bottom, owing to their passing through holes in the truck frame of a greater diameter than their own, it was possible for the car to be swayed transversely, the only resistance to which lay in the unequal compression which was thereby thrown upon the two sides of the supporting spiral springs. It was quite possible to move a car from three to five inches latterly by pushing upon it. This, while the car was running, gave a very disagreeable swaying motion to the body of the car.

The matter was discussed at that time, and it was decided that the introduction of elliptic springs, fastened at the top of the car body, and at the bottom of the truck frame, would overcome the difficulty, owing to the fact that such a swaying motion would necessitate the bending of the plates of the elliptic springs transversely, which would be practically impossible with any stress that would be ordinarily placed upon the car while running. Owing to commercial reasons, and the increased expense involved in the construction of a truck with elliptic springs, they were not introduced until after I had severed my connection with the Peckham Street Car Wheel and Axle Company.

But since that time and down to the present I have seen numbers of the Peckham Street Car Railway trucks in use, which contained these elliptic springs arranged precisely as it was proposed
157 to arrange them while I was with the company. They fill the exact office, and perform the exact function for which

they were then proposed; and I cannot imagine, from my professional knowledge and experience, for what other purpose they can be introduced, fastened as they are above to the car body, and below to the truck frame, than to prevent the swaying of the car body in a lateral direction.

My attention is called to an affidavit made on behalf of the complainant, by Mr. Joseph P. Livermore, in which he says, on the middle of page 12 (bottom of p. 69 in printed copy): "In this connection, it is to be observed that in the Peckham 'Standard' and 'Extra Long' trucks there is an additional spiral spring near each end of the independent frame, but below the same, so that it acts with a strong resistance to oppose the upward movement of the adjacent ends of the car. This was an expedient that had been devised prior to the date of the application of the Brill patent in suit, with a view to diminishing the oscillation of the car bodies by resisting their upward movement, but which has been found, in practice, to be ineffectual for accomplishing the desired result."

I do not know upon what data this affidavit was based, but my experience and observation has been that the introduction of that lower spring to resist the upward motion of the car has been perfectly effectual in accomplishing the result for which it was intended. As it was first designed when I was with the Peckham Street Car Wheel & Axle Company, it is still in use, and is, as far as my knowledge and observation goes, and that is quite extensive, the most effectual method now known and in use for overcoming the galloping motion in street cars.

My attention was also called to patent in suit, No. 478,218, issued July 5th, 1892. I have carefully read the specifications of said patent, and find that the construction of the truck therein de-
158 scribed differs essentially from any which have ever been constructed under my direction, or which I have known to have been since constructed by the Peckham companies. In the patent aforesaid it is distinctly claimed that the top of the elliptic spring is not fastened to the upper member of the truck, but that the whole weight of the car is supported when in the normal position, by the "axle-box springs," and that only after these springs have been compressed a certain predetermined amount does the elliptic spring come into play, and that the said elliptic spring has no tendency whatever to resist the upward motion of the car body.

It would therefore be possible for the car body to gallop by an amount which would equal at one end the distance to which the axle-box springs must be compressed before the elliptic springs comes into action, and at the other end by an indefinite amount before any resistance or checking to the galloping would be brought into play by these elliptic springs.

In the trucks as constructed by the Peckham companies, on the other hand, the elliptic springs have a rigid connection with and consequently have a bearing against the sills of the car and are under compression under all conditions; and the result is that at the slightest downward movement of the car body, these springs

resist that motion, and tend to check any tendency to galloping. The same statement applies to the springs below the truck frame, which tend to resist all upward motions of the car. Therefore the construction of the Peckham truck and of the Brill truck as described in the patent in suit are utterly dissimilar, and in nowise resemble each other.

In order to ascertain the amount of galloping that will occur on a street car running under varying conditions and fitted with trucks having all spiral springs, as compared with a truck in which
159 one elliptic spring was substituted at each end of each side for one of the spiral springs, as shown in the cut of the Peckham truck designated as "Extra Long" in Complainants' Exhibit I, I have recently conducted some experiments upon the tracks of the New York & Queens County railroad. The nature of these experiments was of such a character that all matters governed by the personal equation of the observer were eliminated, and the action of the car was graphically shown by the operation of the instruments used, upon a moving strip of paper, upon which was automatically recorded the rate of speed of the car and the galloping motion of the ends of the car, in such a way that both of these could be positively and accurately determined at any and every half-second interval while the car was in motion.

The section of the road-bed upon which these experiments were made was that forming part of the extensive system of the New York & Queens County Railway Company, running from 92d Street ferry in Astoria to 34th Street ferry in Long Island City, a distance of about three miles. This section of the road-bed was chosen because the officers of the railway informed me that it was the oldest and the roughest of any section of their system, and by personal observation I know that it was a very rough road-bed for a street railway.

In all, eight round trips were made, running in one direction upon one track and running in the opposite direction on the other track.

The first four of these round trips were made with the car equipped with all spiral springs.

The second four of these round trips were made over the same tracks with the same car, in which one set of the spiral springs was removed and elliptic springs substituted in their stead, as shown in theillustration of the Peckham truck designated as "Extra Long" in Complainants' Exhibit I.

160 The first two round trips, with the car equipped with all spiral springs, were made running at the highest speed that was possible to attain and maintain on the streets through which the tracks ran, and considerably exceeded the ordinary running schedule of the road.

The third round trip, with the car equipped with all spiral springs, was made running at a speed as near as possible to that at which the cars were scheduled to run in the regular service.

The fourth round trip, with the car equipped with all spiral springs, was made at a slower speed than the ordinary schedule

running rate and as slow as was possible and yet not interfere with traffic.

These several trips were then duplicated, the car, its load and the speeds being identical in all respects as near as possible, the only difference in any respect being that elliptical springs were substituted for that set of the spiral springs which is immediately outside of the pedestals at both ends of the car, as is shown in the illustration of the Peckham truck marked "Extra Long," in the Complainants' Exhibit I. The elliptic springs were adjusted to sustain the same weight as the spirals.

The car that was used for these experiments was an open car with cross-seats. The total length of the car over the buffers was 30 feet and 10 inches. The length over the side sills was 29 feet. It was carried upon four wheels of 30 inches diameter having a wheel base (distance between the centers of the axles) of 6 feet 6 inches. The proportion of the total length of the car to the wheel base upon which it was carried, was thus nearly five to one; and therefore it was as long a car body supported on as short a wheel base as we were able to find, and which is as long as is ordinarily constructed.

These tests were made on Monday and Tuesday last and it is now Thursday. The tests were so extensive that it has been impossible for me to fully plot them, as it is called, so as to enable me to give absolute mathematically correct figures for all of them so that
161 they can be compared thereby. But from such study as I have been able to give to them, I am in a position to state positively that the oscillations of the car when the spiral springs alone were employed, and when spiral and elliptic springs were conjointly used, were substantially the same throughout the whole series of tests.

But there was a marked difference noticed in the character of the movements which the car made when the spiral springs were employed, in comparison with its movements when elliptic and spirals were conjointly used, and this difference is as follows: That when all spirals were used, the movements were smoother, more even, less tremulous, less abrupt than when the elliptic and spirals were conjointly used. Thus the riding of the car when the all-spiral springs were employed was what is known among street railway men as smoother and more comfortable than when the spirals and elliptics were conjointly employed. This difference in smoothness or comfortableness of the car motions was noticed and referred to by all the gentlemen who were upon the car with me at the time these tests were made, among whom were Mr. Newbury and Mr. Abbott.

I have, however, compared the records made by my recording instruments on the two trips where the speed was the highest, in one of which the car was equipped with all spiral springs and in the other with the elliptical springs introduced as aforesaid, and am able to give precise figures as to these results. They are as follows: The maximum galloping movement of the all-spiral-spring car was one and nine-sixteenths ($1\frac{9}{16}$) inches. The maximum galloping movement of the same car provided with elliptical and spiral springs as aforesaid was one and one-half ($1\frac{1}{2}$) inches, a difference of one-thirty-second ($\frac{1}{32}$) of an inch at each end of the car truck at the

point where my instruments were attached, a difference entirely unappreciable except by the delicate instruments I used in making these measurements.

162 If these oscillations are carried out to the ends of the car sills, I find that the maximum vertical oscillation when the car was equipped with all spiral springs amounts to three and forty-five one-hundredths (3.45) inches; and when the car was equipped with elliptical and spiral springs as aforesaid, the maximum vertical oscillation amounts to three and thirty-one one-hundredths (3.31) inches, a difference of fourteen one-hundredths (.14) of an inch, a difference which would be entirely unappreciable by a passenger standing upon the platform of the car.

It would perhaps be well here to explain that my registering mechanism registered the difference of movement between the projecting ends of the truck frame and the sills of the car body immediately above it. Of course this was less than the motion at the extreme end of the platform of the car.

Thus it conclusively appears that as far as the galloping movement is concerned, there was no appreciable difference between the car when equipped with the spiral springs alone and the car equipped with elliptical and spiral springs in combination; but that the movement was smoother and more agreeable when the all-spiral springs were used than when the elliptical springs were introduced.

I would also remark that these maxima of galloping movements as shown in the figures that I have already given, only occurred when the car was being run at a rate of speed much faster than that of the *of the* ordinary schedule of the road.

I have also gone over and examined the records given by my instruments of all these trips sufficiently, to demonstrate that the actual plotting out of the rest of these records can show no material difference.

When the car was running at our lowest speed, to wit, nine miles an hour, the records show that the galloping motion was practically nothing.

163 When the speed was increased to that of the regular schedule running rate, that is, approximately thirteen and a half (13½) miles an hour, the average galloping was barely perceptible in each case and so nearly the same with both equipments that, though shown by my instruments, the difference would have been imperceptible to a passenger. The maximum galloping motion occurred at one point with the car equipped with all spiral springs and amounted to one and five-eighths (1⅝) inches as measured by my instruments. With the car equipped with elliptical and spiral springs as aforesaid, the maximum galloping was one and three-quarters (1¾) inches.

These figures, extended to the ends of the sills of the car, give a maximum gallop at that point of three and eighty-six one-hundredths (3.86) inches with the car equipped with elliptical and spiral springs; and three and fifty-nine one-hundredths (3.59) for the car equipped with spiral springs alone.

But these oscillations were abnormal. Both of them occurred at

one point only in the runs and were doubtless due to some local cause, and were not characteristic of the entire runs with either equipment.

I might add in regard to the general action and equivalency of springs the following:

It is a well-known fact to those skilled in the manufacture of springs that single-leaf elliptic springs have the same kind and character of action that spiral springs have when compressed and extended under a load.

It is also a well-known fact that the addition of leaves to elliptic springs tends to make them sluggish in action, because when leaves are added to single-leaf elliptic springs, they, of course, rest upon the main leaf; and as the springs are compressed and expanded, each superposed leaf must rub over the surface of the adjoining leaf or leaves at each compression and expansion of the springs.

Thus the contact of the several leaves, one with another,
164 causes friction between them, which must necessarily be overcome, thus tending to sluggish action both in the compression and the expansion of the springs. This friction is present in all leaf springs having more than one leaf, whether they be full-elliptic, semi-elliptic, quarter-elliptic or straight springs.

It is also a well-known fact to persons skilled in the spring art, that the action of semi-elliptic springs is identical in kind and character with that of full-elliptical springs. It must be so since a full-elliptic spring is simply two semi-elliptics, and the semi-elliptic springs used as in the Peckham patent No. 419,876, dated January 21, 1890, would, in respect to the frictional contact between its several leaves and its action on the compression and recovery, be substantially the same as the action of the full-elliptic springs of the Brill patent in suit and of the Peckham trucks here in question. In fact, the foregoing may be said to be the A, B, C of the spring-maker's art. Without this knowledge there would be no sufficient data from which to design the springs so as to adapt them to the work for which they are to be used.

GEO. L. FOWLER.

Subscribed and sworn to before me this 25th day of October, 1900.

WM. O'SHAUGHNESSY,
[SEAL.] *Notary Public, N. Y. Co.*

165 *Affidavit of James J. McGowan.*

United States Circuit Court, Southern District of New York.

JOHN A. BRILL & J. G. BRILL CO. ET ALS., Complainants,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL CO. ET ALS., Defendant-. } In Equity.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

James J. McGowan, being duly sworn, deposes and says as follows:

I was master mechanic for the Third Avenue Railroad Company, New York city, for about ten years and during that time had entire charge of the equipping, mounting and maintenance of the trucks and cars. My connection with that company ceased in the spring of 1900 when the road passed into the control of the Metropolitan Railroad Company.

While I was master mechanic of the road and some time during the fall of 1899, the power system was changed from a cable to an electric system. While said road was still operated by the cable system the company had in operation under its cars a number of trucks furnished by the Bemis Car Box Company, there being as near as I can recollect about 175 such trucks. I had entire charge of the maintenance of such trucks and of mounting them under the cars, and am entirely familiar with their construction and behavior, as I am also with the behavior and construction of other car trucks that the company used.

166 During the time that the said Bemis trucks were being used by the company, the company also had in operation about 175 Peckham trucks of the style shown in the annexed cut marked "Excelsior" taken from a Peckham catalogue.

The trucks furnished by the Bemis Car Box Company, and which I will call the Bemis truck, had a stationary frame, *i. e.*, one rigidly connected with the saddles straddling the axle boxes. This frame extended at each end a considerable distance beyond the wheels of the truck. Above this frame there was a second frame, which was composed really of the sills or base frame of the car body, which was correspondingly extended at the ends to be in length equal, or approximately equal, with the lower stationary frame; that is to say, the sills of the car body were of such length. Spiral springs were interposed between the lower stationary frame and the upper frame or car-body sills adjacent to the saddles, there being one spring on each side of each saddle. Between the ends of the stationary frame and the sills of the car body were interposed elliptical springs, there being two such springs at each end of the car arranged longitudinally. These elliptical springs were attached rigidly to the lower stationary frame, but were unattached to the upper frame or car-body sills; and on such sills above each elliptical spring was

a bifurcated block or shoe, the jaws of which extended down beyond the sides of the upper parts of the elliptical springs, but the face of which between such jaws did not come in contact with the elliptical springs, there being a considerable or very noticeable space between the upper faces of the elliptical springs and the faces of the shoes or bifurcated blocks. In these trucks, therefore, the weight of the car body and the initial passenger load was carried entirely by spiral springs applied at the saddles, and the elliptical springs only came into action to assist in carrying the load when the load had so increased as to sufficiently compress the spiral springs.

167 Although these trucks were used for some time they were very objectionable and unsatisfactory. When the wheels would strike a depression or inequality in the track, the effect would be to throw one end of the car up and the other down, causing what is commonly called among street railroad men "galloping." This was a constant source of annoyance, and moreover resulted in increased wear and tear on the track due to the pounding action of the truck. This behaviour of the Bemis trucks was so objectionable that we attempted to remedy it by interposing between the tops of each of the elliptical springs and the faces of the bifurcated shoes a block of wood. In applying them we jacked up the car body, interposed the blocks and bolted them to the upper frame or car-body sills. When so modified the elliptical springs acted constantly and conjointly with the spiral springs to carry the load, and the objection to which I have referred was in part obviated.

During the time we were so using the Bemis trucks, we were using, as already stated, a number of Peckham "Excelsior" trucks. In these trucks the lower stationary frame connected with the saddles had interposed between it and the upper frame, attached rigidly to the car body, a series of spiral springs adjacent to the saddles, and between the extended ends of the upper and lower frames, elliptical springs, two at each end of the car, longitudinally arranged and rigidly attached both to the upper and lower frames, as appears very clearly in the cut of the "Excelsior" truck hereto attached. In addition to what I have so far described, the bolts that ran through the spiral springs at each end of the car outside the wheel base, extended through a part of the lower or stationary frame, and each had a nut and washer or spring cup applied to their lower ends, and between the spring cup and the lower frame they were surrounded by spiral or helical springs, the reaction or ten-

168 sion of which was such as to resist the upward movement or vibration of the ends of the upper frame or car body, or in other words, to oppose "galloping."

Such Peckham trucks were entirely satisfactory in use, and were free from the objectionable behavior of the Bemis trucks which I have described.

At the time of changing from cable to electrical power, it was recognized that the objectionable features of the Bemis truck would be accentuated when the truck was loaded with the additional weight incident to the application of the electric motors; and because of this anticipated further objection and our dissatisfaction

with the behavior of the Bemis trucks, that is, their "galloping" action, it was concluded at the time the change was being made from cable to electric traction, which, as I now recollect, it was, as before stated, during the fall of 1899, to discontinue the use of the Bemis trucks entirely.

Up to the time that my connection with the Third Avenue railroad ceased, I had so dispensed with 100 Bemis trucks which were replaced by Peckham trucks having the same general construction and mode of operation which I have described in connection with the "Excelsior" truck, and which were of the general construction shown in the annexed cut of the extra strong "Extra Long" Peckham truck cut from the Peckham catalogue.

The 100 Bemis trucks discarded by the company up to the time I left were thrown into the scrap heap as entirely worthless, no attempt being made to utilize them; and up to the time of my leaving the company no Bemis car truck had been equipped with an electric motor.

JAMES J. McGOWAN.

Subscribed and sworn to before me this 25th day of October, 1900.
[SEAL.] WM. O'SHAUGHNESSY,
Notary Public, N. Y. Co.

(Here follows diagram marked p. 169.)

170 & 171 *Affidavit of Jacob R. Beetem.*

United States Circuit Court, Southern District of New York.

JOHN A. BRILL and J. G. BRILL COMPANY ET AL., Complainants,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY ET AL., Defendants.

COUNTY OF QUEENS, } *ss:*
State of New York, }

Jacob R. Beetem, being duly sworn, deposes and says: I live at Flushing, L. I., am vice-president and general manager of the New York & Queens County Railway Company and the New York & North Shore Railway Company, whose principal office or place of business is at 7 Borden avenue, in the first ward of the borough of Queens, formerly Long Island City.

I have been in the electric railway business as manager of the Atlantic Avenue Railroad of Brooklyn, the Scranton Railway of Scranton, Pa., and the Union Traction Company of Philadelphia, for about ten years. Prior to this I was engaged in the manufacture and sale of cars and trucks for steam railways, having learned my trade as a mechanic in the car shops at Carlisle, Pa. I am familiar with the construction and operation of nearly all of the different types of electric trucks, and especially those made by the Brill Com-

EXCELSIOR No. 7 B

DIMENSIONS: { Length, Wheel Base, 4 to 5 feet, as ordered. Gauge, Standard, 4 ft. 8½ inches. Height, Rail to Seat, 30 inches. " Open Car Truck, to suit length of Car Body.

Designed for Short and Medium Length Closed and Open Electric Cars.

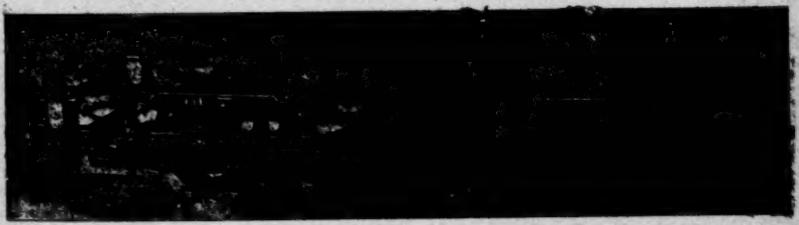
The Auto-Gallofoil Springs are concealed in these boxes. See Model

No. 4454
Truck
at
Peckham Co.
} p. 169

EXTRA STRONG, "EXTRA LONG" "Metropolitan Special"

Designed for Extra Heavy 20 to 24 Ft. Closed and 30 to 35 Ft. Open Cars.

DIMENSIONS: { Length, Wheel Base, 4 to 5 feet, as ordered. Gauge, Standard, 4 ft. 8½ inches. Height, Rail to Seat, 4 feet 4 inches. " Open Car Truck, to suit length of Car Body.



This Truck was designed Expressly for the Extra Long (32 Ft. Closed—33 Ft. over all) Electric Combination Cars of the Metropolitan Street Railway Co. of New York, where 100 are to be running at Times a Speed of Twenty Miles an Hour without Oscillation.

pany and the Peckham Company, having had a large number of them in use on the different railways under my management. Both the Brill and Peckham trucks are what is known as long spring base trucks, and are intended to prevent the oscilla-
172 tion of electric cars. The Brill truck referred to in this suit known as their number twenty-one (21) and shown and described in letters patent No. 478,218, granted to G. M. Brill, July 5th, 1892, has a truck frame with extended end sections supported from overhead by steel or iron rods passing over the tops of the journal box saddles. The car-supporting springs in this truck consist of eight spiral and four elliptic springs resting upon and supported by the side frames. The elliptic springs are rigidly bolted to the lower truck frame, but not to the top frame which is secured to the car body and rests upon eight spiral springs located each side of the saddles. Secured to the under side of the top frame is a cap or pocket to guide the elliptic spring, which is not secured rigidly to the top frame. The car body is supported upon the eight spiral springs, and does not come in contact with the elliptic springs until the spiral springs are sufficiently compressed (from one to two inches).

Electric cars are usually (including platforms) from twenty-six (26) to thirty (30) feet in length, and being limited to a seven-foot wheel base (distance from centre to centre of wheels) the ends of the car body will project from eight (8) to ten (10) feet beyond the outside of the wheel base; and when running at a speed of eight (8) miles or more an hour, a slight depression in the track will cause the car to "gallop," unless the rear end of the car body is so secured to the truck frame that it cannot rise.

In the Brill truck referred to in this suit, the car body is not so secured, and as the forward end of the car body goes down the rear end will rise up; and when the forward wheels get beyond the depression in the track (usually low rail joints) the rear wheels will run into it and cause the rear end of the car body to go down, and the car will continue to oscillate as long as there are any depressions in the track.

The construction of the Peckham truck differs from that
173 of the Brill truck in the construction of their side frames and the arrangement of the car-supporting springs. The side frames of the Peckham trucks, whether "Excelsior," "Standard," or "Extra Long," are constructed upon the principle of the cantilever bridge, the end extensions supporting the car springs, being supported from underneath by the lower member constructed in the shape of a cantilever truss. The arrangement of the car-supporting springs is such that the weight of the car body is first supported upon four elliptic springs which are rigidly secured between the top and bottom, and carry the greater part of the weight of the car body. The spirals, which are weaker, carry the remainder of the load.

To assist in preventing the oscillation of the cars, the Peckham trucks are provided with underneath "tension" springs, connected by means of bolts to the top truck frame near its ends, and when the

forward wheels run into depressions in the track and the forward end of the car body goes down, the rear end is prevented from going up unless it raises the truck frame, wheels, axles and the motor connected thereto, which it cannot do as their combined weight will counterbalance the weight of the overhang of the car body; and the result is, that the car cannot oscillate to the same extent as car bodies mounted on Brill trucks.

The prevention of oscillation in the Peckham trucks is due, first, to their long spring base (distance from centre to centre of extreme end springs), second, to the aid of underneath tension springs (located at each corner of the truck) and connected with the car sills by means of bolts extending upward.

With proper care to regulate the underneath tension springs, a Peckham truck of the extra-long type will run at a speed of fifteen to twenty miles an hour on an ordinary road-bed with very slight oscillation; while the Brill truck referred to in this suit, having a shorter spring base and no provision to hold the ends of the car body firmly to the truck frame, will not run ten miles an hour without excessive oscillation.

174 The elliptic springs in the Peckham trucks are rigidly secured to the truck frames both top and bottom. They are made stronger than the spiral springs and carry the greater part of the car; the spiral springs are made weaker and reinforce the elliptic springs as the load of the car increases. Being rigidly attached to the top and bottom members of the truck, the elliptic springs hold the car body firmly in place and prevent end and side thrusts.

In the trucks manufactured by the Brill Company the entire weight of the empty car body is carried upon the spiral springs as stipulated in their letters patent, page two (2), No. 478,218, while the elliptical springs are placed in such a way as to assist the spiral springs in resisting the depression of the car and preventing oscillation. The elliptical springs being of less height than the spiral springs and not being rigidly fastened to the top of the truck frame, do not come into action until the car body is depressed; and when the front end of the car body is depressed by the wheels running over a low rail joint, the car will oscillate when there is any slight irregularity in the road-bed, while in the Peckham truck the rigid contact of the elliptic springs with the top and bottom members of the truck frame holds the rear end of the car body firmly to the truck frame and prevents oscillation.

J. R. BEETEM.

County of Queens, } ss.:
State of New York, }

Jacob R. Beetem, being duly sworn, deposes and says that the above statement is true to his knowledge and belief.

J. R. BEETEM.

Sworn to before me this 26th day of October, 1900.

CHAS. BRESLOFF,

[SEAL.] *Notary Public, Queens Co.*

175 U. S. Circuit Court, Southern District of New York.

JOHN A. BRILL and J. G. BRILL COMPANY, Complainants,
against
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET AL., Defendants.

Affidavit of Henry F. Newbury on Behalf of Defendants.

CITY, STATE, AND COUNTY OF NEW YORK, *ss:*

Henry F. Newbury, being duly sworn, deposes and says as follows:

I am 58 years of age, reside at No. 142 Park place, borough of Brooklyn, city of New York, and am by trade a machinist.

When a young man I learned my trade and have worked more or less at that trade for twenty-five years or more, and while so engaged I became familiar with mechanical principles and their application in the construction and operation of machinery. I also became familiar with the designing of mechanical structures and the making of mechanical drawings and the reading of the same, and I have designed many mechanical structures of various kinds and characters, and have also constructed such structures with my own hands and superintended their construction by others.

For the past twenty years or so I have devoted a large proportion of my time to questions pertaining to patents and pat-
176 ented inventions, to controversies in the United States courts and elsewhere wherein patented inventions were the subject-matter. For the past twelve or fifteen years I have devoted almost my entire time to matters pertaining to such controversies, and during that time I have read the specifications and drawings of large numbers of patents both of this and foreign countries to learn wherein the mechanism and structures therein shown or described differ from or resemble other mechanisms or structures which may be in controversy or with which comparison was desired. I have frequently been called upon to testify as an expert witness in the United States courts where patented inventions were the subject-matter of controversy, and have been there called upon to point out the resemblances and the differences between the several mechanisms or structures which in each case were involved, and for the past twelve years or so almost my entire time has been devoted to these matters.

I have been called upon as an expert to testify in cases where many kinds of railroad appliances have been the subject-matter in controversy, including street railway trucks as well as switch mechanisms, switch-operating mechanism and different kinds of brake mechanisms, including air-brake mechanisms.

I have carefully read and studied the specification and drawings of the Brill patent in suit, No. 478,218, and believe that I am familiar with the street railway trucks therein shown and described and particularly pointed out in claims 1 and 2 thereof, which I under-

stand are the only claims at issue in the present case, and therefore will confine myself to such consideration as may explain my understanding of the combinations particularly pointed out in said claims.

I am also familiar with the history of this Brill patent in suit, as the same is disclosed in the file-wrapper and contents of the application in the Patent Office.

177 I am also familiar with the record in the suit of Brill against the Third Avenue Railroad Company referred to in the motion papers herein.

I am also familiar with the affidavits found in the motion papers herein, having carefully read and considered the same, and I have also carefully examined the several exhibits referred to.

The theory upon which the car truck acts, as described and claimed in the patent in suit, according to the complainant's witness, Akarman, as appears from the complainant's affidavits and Judge Shipman's decision in the Third Avenue case, is as follows. I quote from that part of Judge Shipman's decision wherein he quotes from the deposition of the witness, Akarman:

"From a practical observation my opinion is that the combination of an elliptic and spiral spring as appplied in trucks of this type breaks the rhythm of motion, or interrupts it. In trucks with all spiral springs, or, I should think, if it were possible to construct, a truck having all elliptic springs, the rhythm of motion is perfect; the springs acting in unison. In the truck, as previously described, having the combination of elliptic and spiral springs, the rhythm is broken, and the result is that the galloping or rocking motion was done away with."

According to well-known physical laws the rhythm of motion of spring-actuated parts, as for instance, the ends of tuning forks, as well as all other spring-actuated parts which respond to the spring action or tension stored up within them, depends wholly upon the characteristics of each individual part. Therefore, unless a series of springs have identically the same physical structure throughout their entire extent, there can be no rhythm of motion between them, and it is a physical impossibility with springs manufactured in quantities and in the manner they must be manufactured to sustain the weight of cars to have any real rhythm of motion between

178 the several springs. Therefore, it follows as a matter of course, to any mechanic or engineer at all familiar with the subject, that each individual spring has its own rhythm of movement and no two are exactly alike, and where they are not alike one necessarily interferes with the rhythm of the other. The mere differences necessarily present in the rolling of the material out of which springs are made render it extremely difficult and practically impossible to make two springs having exactly the same rhythm of movement. From this it follows that in a series of springs of any kind, made, as springs must be made for use in railroad cars, there is no such thing as a rhythm of movement between them. Of course, by great care, which would be impracticable in commercial use, one could select by repeated tests, a series

of four, eight or twelve springs which might have very near the same rhythm of movement, but this cannot be done in ordinary commercial work, and there is no occasion for it. From this it follows that there is no such thing as a rhythm of movement of the series of springs to be considered in this case.

Furthermore, with any series of springs in which one portion of the series is stronger than the other portion, there can be no rhythm of movement between the two portions, whether the springs of such series be all coiled springs, or be all leaf springs, whether full-elliptic, semi-elliptic or quarter-elliptic, or any other form, all these forms being known to those at all skilled in the art of springs, which of course not only includes the manufacture and use but also the designing for use of special springs for special purposes. From the foregoing it follows as a matter of course that in any series of springs wherein one is stronger than the other, there can be no rhythm of movement between the stronger and the weaker, as the stronger will control the weaker whether the stronger be of the same kind as those of the weaker or whether one portion is of one kind and another portion is of another kind, the stronger always,
179 under all circumstances, controlling the weaker. In such a case the stronger interferes with the weaker and *vice versa* and one tends to break up the rhythm of the other.

In fact this seems to be clearly recognized in the Brill patent in suit, and also in the file-wrapper and contents which show the history of that application as it proceeded on its way to a patent.

Because of the foregoing and other well-known facts, I am clearly of the opinion that there can be no difference whatever between the rhythm of movement generally considered of two series of springs where one is stronger than the other, whether such two series be all of the elliptic form, semi-elliptic form, or spiral form, or part of one and part of the other. In each case there is necessarily a difference in the rhythm of movement, and if there is any special advantage to be derived from this difference in the rhythm of movement between the two series of springs, it must be due to some special arrangement of two or more portions of the series in relation to each other by which such special advantage will be attained, and not from the inherent qualities of the springs themselves, which is always, under all circumstances, present.

As I understand this Brill patent in suit it is necessarily of a limited character, first, because of the statements contained therein; second, because of the history of its application in the Patent Office; and third, because spiral, elliptic and other kinds of springs have been used interchangeably, one for the other, in car and other constructions from almost the first introduction of railways in this country.

The specification of this patent describes a combination in a truck for four-wheel cars, of spiral and elliptic springs of a peculiar character, and does not, so far as I can find, anywhere suggest any other combination than this one, or that the result attained by this
180 peculiar and limited combination can be attained by any other combination of parts. In fact it was only by reason

of the limited character of this peculiar combination apparently that claims 1 and 2 were allowed by the examiner in charge of this Brill application.

The chief characteristic of this peculiar combination, so far as claims 1 and 2 (the only ones in controversy on this motion), are concerned, is that the spiral springs must necessarily be stronger than the elliptical springs, and thus enable the spiral springs to normally take the weight of the car and operate in the particular manner described in this Brill patent.

This mechanism is referred to on page 1, line 58 *et seq.*, wherein the specification states as follows:

"The upper chord is thus extended for the purpose of giving a firm bottom for the car and through the instrumentality of the supporting devices described further on, a greater carrying capacity. The spiral springs, which are supported by or upon the axle boxes, normally take the weight of the car."

In order that these spiral springs of this Brill truck may do this, they must necessarily be stronger than the elliptic springs, otherwise they could not normally take the weight of the car; and if they do not, they are not the spiral springs of this Brill patent.

On the same page the application of this Brill patent refers to some further attempts to prevent the end oscillation, or the so-called "galloping" action of car bodies, and after referring to such attempts, it states what the invention of this Brill patent consists in as follows:

"This has not been found to work satisfactorily, and an adaptation of my invention consists in making the axle-box springs comparatively weaker and slower than has formerly been done, and to place elliptic springs in such a way as to assist the spiral
181 springs in resisting the abnormal depression of the car and in equalizing the end oscillation of the same. The elliptical springs being slower in their action than the spiral springs."

In this statement the spiral springs referred to are to be comparatively weaker than the strong or heavy spiral springs mentioned in a preceding part of the specification. Again, on page 2 of the specification of this Brill patent, at line 121 *et seq.*, it is said:

"To this end I supplement the axle-box springs (spiral springs) by placing elliptical springs of slower action between the extended portions or sections of the side beams and upper chord, and I arrange them in respect to each other so that the elliptical springs will not come into play until after the axle-box springs have begun to compress, and the action of the spirals in lifting the car body is continued after the elliptical springs have ceased to act."

Again on page 3, line 74 *et seq.*, the specification refers to the arrangement and construction of the elliptical and spiral springs as follows:

"When the excessive loading is not present, the springs on the ends of the side beams (elliptical springs) act as buffers, the ordinary action of the car body on the truck being taken up by the spiral springs."

The specification describes at length at various places the con-

struction of the means employed to so attach the elliptical springs to the lower member, or chord, of the truck mechanism, that they do not connect with the upper member or chord of such mechanism, and also how they do not come into action until after the spiral springs have been considerably compressed.

It will be seen that not only does this Brill patent specifi-
182 cally state that the combination of elliptic and spiral springs set forth therein is one in which the spirals normally take the weight of the car, and, therefore, must normally take a portion of the load, before the elliptical springs can come into action; and in order that this may be the case, the elliptical springs must assist the spiral springs in resisting the abnormal depression of the car, as stated in this Brill patent, such elliptical springs must be weaker than the spirals.

Furthermore, in order that these elliptical springs may act as buffers, as explained in this Brill patent, they necessarily must come into action some time after the spiral springs are brought into action.

The applicant Brill during the pendency of his application for the patent in suit explained at length and with great detail what he meant in his specification by the word "slower" in connection with his springs, and he sums up, in his letter to the Patent Office, dated May 21, 1892, just what he means by "quick and slow springs," and does this in the following words:

"And, as applicant has previously endeavored to explain, quick and slow springs, mean substantially the same thing as springs hav-greater or lesser carrying capacity."

From this it will be seen that the elliptical springs of slower action found in the foregoing quotations from the specification of this Brill patent, mean springs having a lesser carrying capacity, i. e., weaker in strength than the spiral springs. This must be accepted, it seems to me, as the meaning of the word "slower" when used in connection with the elliptical springs in the foregoing quotations from the Brill patent.

I am confirmed in this understanding by the action of the applicant Brill in response to the action of the examiner when he cited against original claims 2 and 4 (now substantially claims 1
183 and 2), the Peckham patent No. 419,876. The examiner in his first action upon this Brill application, cited this Peckham patent and said,

"By reference to Peckham No. 419,876, January 21, 1890, it will be noticed in Figs. 4, 5 and 6 that semi-elliptic springs are used for the ends of the car."

To this applicant replied as follows:

"Peckham describes nothing about one set of springs being quicker or slower than the other, nor one series of springs being adapted to act prior to the other series."

I do not find any further reference to this Peckham patent in the file-wrapper and contents of the application for this Brill patent in suit, and apparently the Patent Office accepted this statement of applicant's as conclusive upon this matter; and thereafter its action

was based upon the understanding that claims 1 and 2 of the patent in suit were limited, not only to springs, one series of which was quicker than the other, or *vice versa*, but also to the description of the arrangement of the elliptic and spiral springs in the Brill patent, *i. e.*, the arrangement just heretofore referred to, which is characteristic of the combinations of said claims.

I am unable to find in this Brill patent in suit, or in the file-wrapper, any suggestion or intimation that any other combination of spiral and elliptical springs could be made by which the alleged new result is obtained, as set forth in the Brill patent, and the file-wrapper of the application for this patent. In fact, without the elliptical springs being weaker than the spiral springs, in this Brill construction, such elliptical springs could not come into play to modify the action of the spiral springs, as explained in said patent; and if they do not do this they would not operate as set forth, and would not be the springs therein referred to. If the elliptical
184 springs were the stronger of the two, so as to control the action of the spirals, then the effect would be substantially the same as if all the springs were elliptic; but with some of them weaker than others (those arranged as at the ends of the car); and, according to the decision of Judge Shipman in the Third Avenue case, such a combination of elliptic springs would not be that of the Brill patent, and would be, according to his holding, a portion of the prior art.

For the purpose of this affidavit, I shall assume that the particular combination of spiral and elliptic springs, shown and described in the Brill patent in suit, and particularly referred to in claims 1 and 2, is, as set forth in Judge Shipman's opinion in the Third Avenue case, when that opinion is considered in the light of the facts set forth in the records of that case, understanding that his language is not to go beyond a consideration of such facts and is not to include matters outside of that case, and I will adopt his line of reasoning as my own, and consider claims 1 and 2 of this Brill patent in the light thereof.

These claims read as follows:

1. "In a motor truck, the combination, with a stationary frame supported upon the running gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and elliptical springs located between the extended sections of the said rigid frame and movable frame, substantially as described.

2. "In a truck, a spring-supporting frame supported upon the running gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, substantially as described."

185 A careful reading of these two claims will disclose the fact to be that they do not specifically in terms mention the bringing into action of the elliptical springs after the spiral springs have

been partially compressed, and also that the spiral springs normally take the weight of the car, or words to that effect, or that the ordinary action of the car body on the truck is taken up by the spiral springs. But, as I understand them, on the above assumption and understanding of Judge Shipman's opinion, the spiral springs of those claims must necessarily be of such a character relatively to the elliptical, that they can and will normally take the weight of the car, as specifically stated in this Brill patent, and when they do this, the elliptical springs are necessarily weaker; that is, having a lesser carrying capacity than the spiral springs, as explained by the applicant in the file-wrapper and contents of this Brill application, and also, to enable the elliptical springs to act as buffers, as also explained in the Brill patent. The only combinations of spiral and elliptic springs suggested in this Brill patent is the one just referred to, and unless these two features of operation are necessarily present, such combinations cannot accomplish the work set forth in the patent as being accomplished by the combinations recited in said claims. It is to combinations having these features that the words, found at the end of these claims, refer as being combinations substantially described in the specification.

From the foregoing I understand that the Brill invention is limited to such a combination of elliptical and spiral springs as that set forth in the specification of the patent in suit, *i. e.*, a combination in which the spiral springs normally take the weight of the car, and the elliptic springs are slower (having a lesser carrying capacity) than the spiral springs, which elliptic springs come into action after the spiral springs have been compressed by the ordinary action of the car body on the truck; and it is not for
186 any and every combination of elliptic and spiral springs interposed between the independent frame or lower member of the truck mechanism and the sills of the car. If the combinations of the claims 1 and 2 are not limited as stated, then the mode of operation by which the alleged new result is attained cannot be had.

Furthermore, a combination of semi-elliptic and spiral springs combined with the two members of a truck frame, which correspond with the two members of the truck of the Brill patent, is clearly found in the Peckham patent # 419,876, which is the full equivalent of a combination of elliptic and spiral springs, when the particular arrangement and construction of the two set forth in the Brill patent in suit is not considered, that is, when the combination of elliptic and spiral springs is broadly considered.

It seems to me that this must have been the understanding of Judge Shipman of these claims in the Third Avenue case, when he refers to this Peckham patent and holds that there is no question as to the fact that this Peckham patent shows the features of a combination of semi-elliptic and spiral springs. In that portion of his opinion where he refers to this Peckham patent in connection with Brill patent in suit, he states his conclusion as to what this Peckham patent contains in the following words:

"This construction, although it contains the name semi-elliptic

spring has not the conjoint action of the patented combination, nor does it perform the functions of the Brill device."

If this be so, then it must necessarily be because of the limited character of the combination of claims 1 and 2 here in issue, and not because of the general and inherent character of all combinations of elliptic and spiral springs.

187 It is a well-known fact to persons skilled in the art of springs, that the action of semi-elliptic springs is identical in kind and character to that of full elliptics; in fact, it must be so since a full elliptic is simply two semi-elliptics. From this it follows, when semi-elliptics springs are used, as in this Peckham patent, # 419,876, it would be in effect, so far as the character of their action is concerned, substantially the same as if full-elliptic springs were employed, as shown in the Brill patent in suit.

In this connection it is to be borne in mind that this Brill patent, page 1, line 66, *et seq.*, states that the elliptic springs preferably are arranged longitudinally of the truck; and if this is the case, then it is permissible to place them crosswise thereof, as the semi-elliptic is placed in the Peckham patent, and such an arrangement would be as fully within the claims 1 and 2 of this Brill patent, as if they were arranged longitudinally of the truck.

The mere term "elliptical spring" does not imply a spring having a different kind of action from a spiral spring, because a single-leafed elliptical spring has substantially the same character of action that a spiral spring has; but the addition of more leaves to this single-leaf elliptic spring changes its character of action only to the extent that the rubbing action between the adjacent leaves cause friction, which has to be overcome, both in the compression of the spring and its expansion, and this is true whether the springs be of the elliptic form, semi-elliptic, quarter-elliptic, or straight form.

This friction between the adjacent leaves of all leafed springs, where there is more than a single leaf, tends to render the springs somewhat more sluggish than is the case when only a single leaf is employed. But this is all the difference that there is necessarily present between elliptic and spiral springs, and it is a difference that is inherent to all leafed and spiral springs where more

188 than a single leaf is employed. It would seem from the holding made by Judge Shipman in the Third Avenue case, that he had in mind the particular combinations of elliptic and spiral springs which is so specifically described in the Brill patent in suit, and he seems to clearly differentiate these Brill combinations from a general or broad combination of elliptic and spiral springs, such as is set forth in the Peckham patent, # 419,876, to which he refers.

The foregoing leads me inevitably to the conclusion that the understanding that I have heretofore expressed, as to the limited character of the combinations recited in claims 1 and 2 of this Brill patent in suit, is the correct one.

It is clearly manifest to me that if only the inherent and necessarily present qualities of elliptic and spiral springs are to be con-

sidered, without any reference to any special arrangement and construction of the same, that then the man who first made the combination of the two necessarily made the invention which Mr. Livermore states he understands to be recited in claims 1 and 2 of this Brill patent, as will be seen from the following quotations from his affidavit which will be found near the middle of page 8 of my copy which reads as follows (p. 64 of printed copy):

"That portion of the invention of the patent in suit which consists in the combination with the frame of the truck structure thus far described, of the sets of springs of a different character arranged as described to neutralize the tendency toward longitudinal oscillation of the car body upon said supporting frame is what I understand is referred to in claims 1 and 2 of the patent in suit."

I am unable to find that Mr. Livermore in describing the truck mechanism of the Brill patent in suit, makes any mention of this specific arrangement and construction of the spiral and elliptic
189 springs, which is so clearly set forth in said Brill patent; and so far as I can find he has nowhere placed any limitation on the combination of elliptic and spiral springs, so far as claim 1 of the Brill patent is concerned, and practically none, as regards claim 2.

If Mr. Livermore's understanding of what he calls the "primary invention," set forth in claims 1 and 2 of this Brill patent, is correct, then it follows as a necessary sequence that each and every combination of elliptic and spiral springs, no matter whether of the specific character described in the Brill patent, or not, is within that understanding, including the combination illustrated in Figs. 4 and 5 of the Peckham patent #419,876, and, furthermore, his understanding would seem to be in direct conflict with the holding of Judge Shipman in the Third Avenue case, which Mr. Livermore quotes with approval in his affidavit.

As before explained, I am familiar with the record in this Third Avenue case, and do not recall a single place wherein this question, as to whether claims 1 and 2 covered any and every combination of elliptic and spiral springs arranged between the two members of a truck mechanism, was raised.

The defendant's structure, as testified to in the Third Avenue case for the purposes of the issues of that case, was, in my opinion, a Chinese copy of the construction and arrangement of parts shown and described in the Brill patent in suit. In said defendant's structure, the spiral springs normally took the weight of the car, just as is set forth in the Brill patent in suit; also, the elliptic springs came into action subsequently to the coming into action of the spiral springs, and could at best only supplement the action of the spiral springs, so far as sustaining the load is concerned, and they would necessarily act as the elliptic springs act in the truck of the Brill patent in suit.

In the present case the facts, as I will hereafter point out, are entirely different, both in the construction and arrangement of
190 elliptical and spiral springs, from what is the case in the Brill patent in suit, or in defendant's trucks in the Third

Avenue case; in fact, the combinations of elliptic and spiral springs in the three forms of Peckham trucks, referred to in the moving papers herein, are so entirely different from the combinations pointed out in said claims, and in said defendant's trucks in the Third Avenue case, as to be incapable of having the mode of operation set forth for those combinations of said claims 1 and 2.

I am familiar with the three Peckham truck mechanisms, shown in Complainants' Exhibit I, and which have been designated in the moving papers herein in, and also in said exhibit as "Excelsior," "Standard" and "Extra Long."

In each of these three forms of Peckham trucks I understand that the elliptic springs are stronger than the spiral springs and necessarily act to always take the weight of the car, and its load; and as they are the stronger of the two they necessarily control the action of the spiral springs, and the car body must partake only of the movement of the elliptic springs, the spirals simply following without controlling the action of the elliptics, and consequently the car body acts substantially as it would act if all the springs were elliptic, with those in the positions where the spirals are now located weaker than those where the elliptics shown in said three forms of trucks are located. It must be manifest that the action of the car body upon these three forms of Peckham trucks must necessarily be substantially the same as if all the springs were of the elliptic form, but with the weaker and stronger arranged as the weaker and stronger springs are now shown in said exhibit as being arranged.

Not only are the elliptic springs in these three forms of Peckham trucks the stronger of the two sets in each truck, but each half of each one of the elliptic springs is rigidly tied to its respective member of the truck mechanism, so that not only do
191 these springs control the movement of the car body upon the compression and expansion of the springs, but in addition to this they perform a very important function. In fact, in my opinion, the only function for which they are placed in said trucks, is of so tying the two members of the truck mechanism together as to prevent end and sidewise swaying movement of the car body relatively to the lower member of the truck frame. This is a function which the elliptic springs of the Brill patent cannot perform for the simple reason they are not normally even in contact with the two members of the truck mechanism, much less being rigidly connected to both the upper and lower members, so as to in any way control any swaying motion of the car body; and consequently, they cannot in anywise tie the car body to the lower member of the truck mechanism, or have the mode of operation of the elliptic springs of this Brill patent in suit.

In addition to the elliptic springs in these three Peckham trucks being stronger than the spirals, and also of the elliptic springs being tied to the sills of the car and the lower member of the truck mechanism, each of said trucks are provided with means by which the car body and the lower member of the truck mechanism are elastically tied together with spiral springs interposed between the under side of the lower member of the truck frame and a bolt or post

fixedly attached to the car body which aids in checking or preventing the upward movement of the car body relative to the lower member of the truck mechanism. This is true of all three forms of trucks shown in Complainants' Exhibit "I," those spiral springs being exposed to view in the two forms therein designated as "Standard" and "Extra Long," but they are enclosed within a pocket, as it were, and not readily seen in that form of truck designated in said exhibit as "Excelsior." But nevertheless I

192 understand that they are as fully present in this "Excelsior" truck as they are in the "Standard" and "Extra Long," the only difference being that in the "Standard" and "Extra Long" the springs are exposed to view, while such is not the case in the "Excelsior" truck.

These spiral springs are placed in such relation to the under side of the lower member of the truck mechanism that they will be further compressed upon the upward movement of the car body beyond its normal position, when without its load, and the further compression of these spiral springs will be in proportion to such upward movement of the car body until they are fully compressed, when they positively arrest such upward movement. When this upward movement of the car body is thus arrested, it cannot move further upward without lifting the lower member of the truck frame and its connected parts. But as the weight of such truck frame and its connected parts is greater than the overhanging portion of the car body, the car body necessarily cannot move upward beyond the point where the spiral springs are fully compressed. I will designate these spiral springs which cushion and may wholly arrest the upward movement of the car body, as upward checking springs.

The presence of these upward checking springs in these several Peckham trucks is in my opinion a feature of great importance in said trucks. In fact it is by them that the excessive end oscillation or so-called galloping action is prevented in the car bodies mounted upon such trucks, and not through the presence of any combination of spiral and elliptic springs found therein.

In these several Peckham trucks an entirely different principle of operation is relied upon from that set forth in the Brill patent in suit for preventing excessive end oscillation, or the galloping action, of car bodies when running over undulating portions of the road-bed, or where there are depressions in the road-bed from low joints or any other cause.

193 I am clearly of the opinion, without the presence of these upward checking springs, or any other special device to take their place in the several Peckham trucks, that there would be fully as much end oscillation or galloping action present as there would be in trucks where all the springs (interposed between the two members of the truck mechanism), are elliptic, or all are spiral, or where part are elliptic and part spiral, as the same are constructed and arranged in the several Peckham trucks designated as "Excelsior," "Standard" and "Extra Long" in said Exhibit "I."

From a mechanical standpoint it is clear that the use of the upward checking springs arranged as shown in the several Peckham

trucks, are well calculated to accomplish the work which they are designed to accomplish, that is, the prevention of excessive end osscillation, or the galloping action, of car bodies, when passing over depressions in the road-bed.

It is clearly manifest that the principle upon which they operate is radically different from any principle of operation set forth in the Brill patent in suit, as the operation of the specific combination of elliptic and spiral springs pointed out in claims 1 and 2 of that patent. In fact there is no similarity between the mode of operations of the two combinations, nor is there any similarity between the means employed, except the mere fact that in one case spiral springs arranged in one special manner, are employed and in the other case a combination of spiral and elliptic springs arranged in another special manner (as set forth in the Brill patent), is employed. In this connection it is to be remembered that Mr. Livermore admits, near the bottom of page 15 of my copy of his affidavit (p. 69 of printed copy), that these spiral springs, which he terms "underlying checking springs," were old prior to the application of the Brill patent in suit. If this be so, then Mr. Peckham had proceeded
194 upon lines which were known prior to Brill and has in no way followed in the lines in which Mr. Brill has proceeded, the two lines being as distinct as it would seem possible for two lines of improvement to be.

I understand from Mr. Livermore's affidavit, in that portion immediately following the one just referred to, that these underlying checking springs were in practice ineffectual for accomplishing the prevention of the galloping or excessive end oscillation of the car bodies; but I am at a loss to understand how it would be possible for them to be ineffectual, or from where he obtains his information as to these underlying, checking springs being in practice ineffectual for this purpose. I have frequently observed Peckham trucks of the form designated as "Standard" and "Extra Long" in said Exhibit "I" in operation, and I have especially noted the fact that said under checking springs or "underlying checking springs" as arranged in those trucks did operate to prevent end oscillation, and anything which tends to do this necessarily tends to prevent excessive end oscillation or the galloping action of the car body when passing over depressions in the road-bed.

I have recently made tests with a car provided with a Peckham truck mechanism of the kind designated in said Exhibit 1 as "Extra Long." These tests were made to ascertain both by observation and experiment the action of said truck in regard to end oscillation, or what has been termed in this case the "galloping" action of the car body on a short wheel base. These tests were made the present week on that portion of road-bed between the Thirty-fourth Street ferry in Long Island City (borough of Queens, city of New York) and the Ninety-second Street ferry in Astoria. This road-bed is a portion of the system operated by the N. Y. and Q. Co. Railway Company. Certain portions of this road-bed are in bad condition so far as concerns low spots in the track, the rails being of
195 the form known as "composite rails." In fact I am credibly informed by different persons familiar with all portions of the

road-bed of the entire system of the N. Y. & Queens County Railroad Company, that this portion is the worst of all portions; and it is for this reason that this portion of the road-bed of said company was selected for these tests, and from riding over considerable of the other portions of the said system which have the reputation of being the next worst, as well as other portions considered good, I fully believe that my information as to the condition of the road-bed between Thirty-fourth and Ninety-second Street ferries, is correct. The car used was of the open or summer type and its body was 30′ 10″ over all in length and the truck had a wheel base of 6′ 6″. These tests were made in company with Mr. Phillips Abbott, Mr. Fowler, Mr. Price and others. This car during the first series of tests was provided with all spiral springs between the two members of the truck mechanism and in addition it had spiral springs, which I have heretofore termed "upward checking springs," which operated, as I have heretofore explained those springs operate.

In the second series of tests the spiral springs located in the positions that the elliptic springs are shown as being located in the cut in said Exhibit I, designated as "Extra Long," was taken out and elliptic springs of similar capacity were substituted. The upward checking spiral springs remained in the car in the second series of tests, the same as they were in the first series. The only difference in the car in the second series of tests from that of the first was the substitution for the spiral springs, elliptics in the second series, everything else remaining the same. This car was provided with a recording mechanism which made a record of the revolutions of one pair of the wheels of the truck mechanism and the time during which such revolutions took place. In addition it made a record of the oscillations of the ends of the car by which the extent of
196 such oscillations could be accurately determined. It also made a record of the oscillations of one end of the car. These records were made on a strip of paper passed through the recording mechanism as the car ran over the track.

I carefully noted the operation of this recording apparatus in connection with the end oscillations of the car, and I know, as a matter of fact, that the parts of the apparatus which made the record of these oscillations upon the strip of paper always responded to the end oscillations of the car, and I also know that the extent of such end oscillations was properly recorded by the apparatus. These two series of tests were made under as near the same conditions of speed, as was possible to attain under the conditions and circumstances of ordinary street railway traffic and the experience of a skillful motorman could attain, so that the comparison between the two series might be made upon substantially the same basis.

From my own observations of the records of the movements of the car I know that the extent of the oscillations of the ends of the car was substantially the same in both series of tests, and this fact can be made plain from the records which were taken.

There was quite a marked difference in the character of the oscillations of the ends of the car in the two series of tests. In the series where all spiral springs were used the oscillations on the upward

movement, as well as on the downward movement, were more gradual and, therefore easier than was the case with the series of tests, wherein the elliptic springs were used. In these latter tests the oscillations of the ends of the car were more quick and jerky than in the series where all spiral springs were used and, therefore, the car with elliptic springs was much the harder riding of the two. This fact makes plain that, so far as an easy-riding car is concerned, the elliptic springs in these Peckham trucks are a disadvantage when a light load is in the car, as was the case during these two
197 series of tests, the load consisting of five persons besides the conductor and the motorman.

So far as I have been able to learn Mr. Livermore entirely overlooks the fact that in the said Peckham trucks the elliptic springs are the stronger of the two sets and that they normally take the weight of the car, and, therefore, as they do this and are placed nearer the end of the car they support such ends to a greater extent than would be possible when the spiral springs are the stronger of the two and are arranged between the saddles and the car body, as in the case of the Brill patent in suit.

When the springs are arranged between the saddles and the car body and are the stronger springs, they normally take the weight of the car, as stated in the Brill patent, and as a matter of course, the main support or spring base of the car body is only but a little longer than that of the wheel base; while in the case of the three forms of the Peckham truck, where the elliptic springs are the stronger of the two sets and always take their proportion of the weight of the car, the support or spring base of the car is more extended than in Brill and much longer than the wheel base, being in the case of the Peckham "Excelsior" truck almost the entire length of the truck frame, while in the "Standard" it is of almost the same length, which is also true of the "Extra Long." In each of the three cases the support or spring base of the car body is much extended beyond the length of the wheel base itself. This manifestly is not the same result, nor can the two sets of springs work substantially the same in the Peckham trucks, as they do in the Brill.

I do not understand that Mr. Livermore himself has made any investigation whatever, at least, if he has I fail to find any mention of it in his affidavit, and I feel confident that had he made the necessary investigations he would not have made the statements
198 found in his affidavit, as he would have found them contrary to the facts, as such facts actually exist.

I also cannot agree with Mr. Livermore that the feature in said Peckham trucks of rigidly connecting the elliptic springs with the upper chord or movable part of the truck frame, is material only in connection with the subject-matter of the claims relating to the subsidiary feature of the Brill invention before referred to, namely, the combinations recited in claims 9, 10, 11 and 14, which were in issue in the Third Avenue case, but not in the present motion; and for the reasons heretofore stated, one only of which I will call special attention to, and that is to enable the said elliptic springs to tie together the two ends of the truck mechanism against longitudinal

and lateral swaying motion, but not in the vertical direction, as before explained, except that the elliptic springs of these Peckham trucks are thus tied to both members of the truck mechanism they cannot serve the only practical function which their presence calls for. Mr. Livermore, near the top of page 17, admits that these elliptic springs, by reason of their being tied to both members of the truck mechanism might serve the function of preventing the car body at one end from being lifted entirely from its spring, which in the old constructions, to which he referred, might occur, and also might occur in the Brill construction under excessive end oscillation where such a thing could only occur.

I also cannot agree with Mr. Livermore in that so far as regards the normal operation of elliptic springs in preventing a pitching movement of the car by acquiring a rhythmical action and consequently increasing in amplitude the springs when connected with the car body, as in the Peckham trucks have the same effect as when not so connected, because if they have the action which Mr. Livermore admits they have (*i. e.*, preventing the car body at one end from being lifted from its spring), they must necessarily pre-
199 vent, to that extent, this excessive end oscillation, which is something they could not do if they were disconnected, as in the Brill patent, therefore the effect is different, as must be seen by Mr. Livermore's own admission.

It is a mechanical axiom, that the nearer a resistance is placed to the point where it is to offer its resistance, the more effectual it will be in accomplishing the desired result, and, therefore, the nearer the ends of the car you can place the springs which are to support it, the greater will be the resistance to any oscillation of the car which must necessarily oscillate very nearly upon the center of its load relatively to its support; and therefore, Mr. Livermore's statement regarding the effect of the spiral springs in the case of the Peckham's trucks, where they are the weaker of the two sets being all included in the space within the elliptic springs or nearly within, or partly within, is contrary to such axiom. This is true whether the spiral springs are the weaker or the stronger of the two sets.

In this connection it is to be remembered that the galloping action or excessive end oscillation of four-wheel cars having long bodies has never been fully overcome and more or less of it on very bad road-beds is present today, as I know by actual experience. In fact one of the objects of the introduction into general use, wherever the track will warrant it, of double-truck cars, that is, a complete truck under each end of the car, has been to do away with this excessive end oscillation; and it does it by supporting the car body near each of its ends, leaving the center of the car body unconnected with truck mechanism. In this case there is simply the rise and fall of each end of the car, due to the rise and fall of the trucks as they pass over the road-bed.

I cannot agree with Mr. Livermore that the prior state of the art does not contain any suggestion whatever of the employment
200 of two classes of springs acting in conjunction with one another to support the car body in such a manner as to fully cushion

the movements of the same and to prevent excessive longitudinal vibration or rocking movement of the car. I understand that the longitudinal vibration referred to is that which produces a rocking movement or galloping action of the car, as that has heretofore been explained in the motion papers herein. The Peckham patent #419,876, which is held by Judge Shipman to be prior in its application to the date of the Brill invention of the patent in suit, manifestly contains such a suggestion, as will be seen upon reference to the specification and the construction shown and described.

On page 1, line 9, etc., it is stated:

"This invention consists in a novel construction of a car truck designed to afford spring supports under the end portions of the car body as well as at the axles, and thus support said body nearly throughout its length, and also obviate in a great measure the vertical oscillation of the same when moving over an undulating track."

On same page, line 22, etc., this Peckham patent states:

"Fig. 4 is a side elevation of a modification of my improved car truck. Fig. 5 is an end elevation of the same."

Here manifestly was a suggestion in the prior art of just what Mr. Livermore says he is unable to find, and yet he refers to this same patent. The only difference in Mr. Livermore's understanding of the invention pointed out in claims 1 and 2 of this Brill patent and this Peckham construction, which is not only shown and described, but which is designed to accomplish this same result, is that in Brill there are full-elliptic springs, and in the Peckham semi-elliptic; and apparently also that this Peckham patent
201 in words does not specifically state what every mechanic knew without its stating, namely, that there were two kinds of springs as shown and described, they had certain inherent characteristics which must be availed of by reason of their very presence in the structure, and it was unnecessary to say more than is said in this Peckham patent regarding this matter, if any broad combination of elliptic and spiral springs is pointed out in said claims 1 and 2, such as Mr. Livermore states his understanding of said claims to be.

Of course the specific and limited combination of elliptic and spiral springs, where the spirals are the stronger of the two and normally take the weight of the car, as set forth in the Brill patent, is not referred to in terms in this Peckham patent, but the general combination is therein shown and described; and as every mechanic knows, the combination of semi-elliptic and spiral springs, arranged as there shown, cannot exist without the inherent qualities of such springs being present and their actions availed of.

Any mechanic skilled in the art of street or truck construction is necessarily familiar with the characteristics of all kinds of springs, and he would know how one affected the other, and it would be unnecessary to tell him. This might be different to those wholly unacquainted with the art, and having no practical knowledge of the subject-matter of springs, and their well-known and recognized modes of operation, and the reasons why they operate in any given way.

It is to persons skilled in the art of street-car truck construction that this Peckham, as well as the Brill and other patents relating to this art, are addressed, and not to those unfamiliar with the facts known to all mechanics, and these facts might be said to be the A, B, C's of their business.

A careful consideration of all the facts referred to by Mr.
202 Livermore, and also those which he has overlooked or ignored, and heretofore mentioned by me, both in connection with the Brill patent in suit, the file-wrapper and contents of the application therefor, this Peckham patent 419,876, and the construction of the Peckham "Excelsior," "Standard" and "Extra Long" trucks, brings me inevitably to the conclusion,

1. That the combinations pointed out in claims 1 and 2 of the patent in suit are limited to the spiral springs of a truck of a four-wheel car being the stronger of the two and normally taking the weight of the car, and that such claims do not take in every combination of elliptic and spiral springs, nor a combination of elliptic and spiral springs broadly considered, and

2. That the Peckham "Excelsior," "Standard" and "Extra Long" trucks do not embody in substance the combinations particularly pointed out in said claims 1 and 2 of the Brill patent in suit.

In forming these conclusions, I do not overlook the fact that there is a difference between the location of the spiral and elliptic springs in the "Excelsior" truck from that shown of the Peckham "Standard" and "Extra Long" trucks; but for the purpose of this affidavit, and in view of the opinion of Mr. Livermore that there is no material difference between the three trucks so far as concerns the combinations recited in said claims 1 and 2, I will only call attention very briefly to said differences. As before explained, Mr. Livermore has apparently overlooked the fact that the elliptic springs are stronger than the spiral springs, and therefore they necessarily control, not only the compression of the spiral springs but also their expansion, and in such a case they would do this substantially the same in one case as in the other. The fact to which I desire to especially call attention, is that by reason of these elliptic springs being the stronger of the two, they nec-
essarily support the load somewhat nearer the end of the
203 car in the "Excelsior" truck than is the case in the "Standard" and "Extra Long" trucks, but this difference is made up by the supplemental support of the spiral spring in the "Standard" truck and the double spiral springs in the "Extra Long" truck, and therefore by reason of the extended length of support, or spring base, the end oscillation of the car is necessarily reduced over what it would be if the spiral springs were arranged as in the Brill construction between the saddles and the upper chord or movable frame of the truck mechanism.

I cannot agree with Mr. Livermore that inventors did not devise some adequate means for preventing the excessive end oscillation of four-wheeled cars, because it is admitted that extended side beams with all spiral springs existed prior to the date of the Brill invention, and it also is admitted that the underlying checking springs

of the Peckham construction was devised prior to the invention of the Brill patent in suit; and I know as a matter of fact from actual experience that with all spiral springs, and said underlying checking springs, there is at least as little excessive end oscillation or galloping motion as is found in any of the Brill cars provided with elliptic and spiral springs, as shown in the Brill patent in suit, on which I have ever ridden, and I have ridden on many of them. I also know by actual experience that with all spiral springs in the Peckham "Extra Long" truck and no elliptics present, but with the underlying checking springs present, there is substantially as little excessive end oscillation or galloping motion to the car as there is with the elliptic springs and spiral springs present shown in the cut designated as "Extra Long" in said Exhibit "I."

I cannot agree with Mr. Livermore that in the Peckham "Standard" and "Extra Long" trucks it is immaterial whether the springs rest directly upon the saddle or upon the frame adjacent to the
204 saddles, and that it is only necessary that these spiral springs should be distributed sufficiently lengthwise of the independent frame and car body to form an efficient and stable support for the car, because if such were the case, then manifestly claim 2 would be in substance identical with claim 1. The language of claim 2 is specific so far as concerns this element and locates the spiral springs beyond question. The claim reading in this respect as follows:

"Spiral springs located between the saddles and movable frame,"

and it does not provide for their being located anywhere else, whereas claim 1 purports to be in this respect simply located "between movable and stationary frames." If Mr. Livermore's contention as to claim 2 is the correct one, then manifestly all claim 2 requires is the same as in claim 1, that is, that the spiral springs be located between the movable and stationary frames; or, in other words, Mr. Livermore would read out of claim 2 the statement that the spiral springs are to be located between the saddles and the movable frame, and import into it the language of claim 1, thus making the two in substance the same.

He admits that there are no spiral springs in these two Peckham trucks located between the saddles and the movable frame, and therefore I need not explain the construction of these two trucks in this respect.

I have carefully examined the photolithographic drawings attached to the affidavit of C. W. Benjamin found in the moving papers herein, which drawings purport to represent the Peckham "Excelsior," "Standard" and "Extra Long" trucks, but they do not do this correctly, because they omit to show any of the upward or underlying checking springs to which reference has been
205 made, and which in the "Standard" and "Extra Long" trucks are clearly shown in Complainants' Exhibit I.

Without these upward or underlying checking springs being present, those drawings cannot show with substantial correctness the Peckham "Excelsior," "Standard" and "Extra Long" trucks

here in issue. By reason of this fact it would seem unnecessary to further refer to these drawings and the affidavit of Mr. Benjamin.

Because of all the foregoing I am clearly of the opinion that the Peckham "Excelsior," "Standard" and "Extra Long" trucks do not embody in substance the combinations recited in claims 1 and 2 of the Brill patent in suit; and also, that the elliptic and spiral springs therein found do not and cannot have the mode of operation that is called for in the Brill patent in suit.

(Signed) HENRY F. NEWBURY.

Subscribed and sworn to before me this 26th day of October, 1900.

ALONZO C. FARNHAM,
[SEAL.] *Notary Public, King County.*

Certificate filed in New York Co.

206 United States Circuit Court, Southern District of New York.
In Equity.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET ALS., Defendants.

Affidavit of Phillips Abbott for Defendants.

On motion for preliminary injunction.

CITY, COUNTY, AND STATE OF NEW YORK, *ss:*

Phillips Abbott, being duly sworn, deposes and says:

I am fifty-one years of age, reside at 128 Gates avenue, Brooklyn, N. Y., and am a solicitor of patents. I have practiced my said profession continuously in the city of New York for upwards of thirty years last past. During that time I have applied for and obtained a large number of letters patent in this and foreign countries. I have very often been called upon to give my opinion on questions of patentability and infringement, and in so doing to compare different letters patent, and letters patent with mechanical structures. During the last fifteen years I have been frequently called upon to act as mechanical expert in causes pending before the United States circuit court, in various districts and circuits, and also in interference cases before the Patent Office.

207 In the course of my practice I have frequently considered as expert and otherwise, structures and letters patent pertaining to car construction, trucks, road-beds, railroad switches, and similar railway appliances.

I have read, and I believe I understand, the United States letters patent granted to George M. Brill, No. 478,218, dated July 5th, 1892; also the complainant's moving affidavits on the motion for preliminary injunction herein and the exhibits thereto attached. I have

also read portions of the testimony given in the case of John A. Brill *vs.* The Third Avenue Railroad Co., and the decision of Judge Shipman in said case at final hearing.

I find that the invention described and claimed in the said Brill patent No. 478,218 is generally stated as follows:

The specification briefly recites the art as it existed prior to the time of the alleged invention, and in so doing states, among other things, that as the carrying capacity of street cars increased, due to the superior motive power of electricity as compared with horse power, the old system of spring-supporting the car bodies was found insufficient, and also, since the wheel base of the cars, *i. e.*, the distance between the points where the wheels rest on the track, was necessarily limited in order that short curves could be rounded, the increased size (particularly the length of the cars) made the galloping action, or excessive end oscillation, objectionable.

The patent further states that prior to the time of Brill's alleged invention it had been found necessary, in order to support the heavier cars and loads, to "use springs which are stronger than usual to support the car body on the truck. These heavy springs have their disadvantages as they are found to be too quick in their action," *i. e.*, too stiff, which made empty or partially loaded
208 cars ride very rough. And it refers to attempts which have been made to obviate the stated difficulties.

The specification then defines the invention of Brill as having two marked characteristics whereby it is differentiated from the prior art. One of these characteristics is that the car body shall be normally supported upon the truck by spiral springs located near the axle boxes, which shall not be so stiff or "quick" as the very rigid spiral springs alluded to in the old art, in order that when the car is empty or carrying a small load it may ride easily and smoothly and be free from the rigidity which would necessarily be present were the car in its then condition supported upon heavy and stiff springs adequate to support a heavy load. And it was also to have elliptical springs so combined with the spiral springs as that when a heavy load was present, or the car subjected to abnormal depressing influences—for instance, rapid travel over a rough road-bed—then these elliptical springs would be called into action in aid of, or, as the patent says, "supplemental to," the spiral springs. The sum of the upholding power of these two sets of springs—the spiral and the elliptical—taken together might be as great as the power of the very stiff spiral springs formerly used. The net result of this construction and combination, which constitutes the invention of the patent, is that the inventor may secure easy, smooth, resilient riding of empty or lightly loaded cars, because of the spiral springs, which are to be weak relative to the exceedingly stiff spirals formerly used, and yet have present in the structure means adequate to meet the demands of a heavy load or rapid riding over rough road-bed: to wit, the elliptical springs. They, however, are not to be called into action until required by such abnormal conditions; at all other
209 times they will be simply carried by the truck, inactive but always present ready for use. The above is stated to be the main object of the invention (see line 11 *et seq.*, page 1).

As an incident of the above construction, the inventor also states (page 1, line 16, *et seq.*), that the "invention is also intended to overcome in a measure the end vibration or oscillation of the car body."

That the foregoing is a correct statement of the invention of the patent is abundantly shown by the specification, as follows: I will not refer to the portions which recite the old art, nor that just stated, merely those which define the invention.

At line 66, page 1, the specification reads:

"Between the extended sections of the upper chord and the side beams I place elliptical springs which perfectly extend longitudinally of the truck and which are so disposed that they will not be brought into action until the weight of the load on the axle-box springs begins to depress said springs abnormally; then the elliptical springs begin to act and assist the spiral springs in resisting the pressure of the load."

At line 101, page 1:

"And an adaptation of my invention consists in making the axle-box springs comparatively weaker and slower than has formerly been done, and to place elliptical springs in such a way as to assist the spiral springs in resisting the abnormal depression of the car."

At line 116, page 2:

"It is therefore clear that more than the ordinary load is intended to be carried on this structure, and for this reason more than ordinary devices for spring-supporting the car body are necessary. To this end I supplement the axle-box springs by placing elliptical springs of slower action between the extended portions or sections of the side beams and upper chord, and so arrange them in respect to each other that the elliptical springs will not come into play until after the axle-box springs have begun to compress, and the action of the spirals in lifting the car body is continued after the elliptical springs have ceased to act. The devices which secure the elliptical springs between the side beams and the upper chord are devised to permit one end of the upper chord to approach the side beams and the other end to be elevated, as will occur in the act of oscillation, one set of elliptical springs being compressed, while the other remains in its normal condition."

At line 25, page 3:

"From the foregoing structure it will be seen that the springs are rigidly secured to the side beams. They, however, are not secured rigidly to the upper chord, so that any upward movement of it will not affect them. The upper chord, however, is provided with means for retaining the upper half of the springs perpendicular to the side beams."

At line 39, page 3:

"While space is left between the inner top portion of the cap and the top of the spring to permit the upper cord to be depressed some distance before the cap begins to depress the elliptical spring."

At line 69, page 3:

"When by reason of excessive loading of the car body and consequent depression of the springs a portion of this action would be

taken on the springs supported on the ends of the side beams. When the excessive loading is not present, the springs on the ends of the side beams act as buffers, the ordinary action of the car body on the truck being taken up by the spiral springs."

These portions of the specification clearly necessitate as
211 fundamental features of the invention, without which its combination and method of operation will not be present, spiral springs located near the axle boxes which, although they may be less powerful than the very stiff ones used in the old art, must nevertheless be stronger than the elliptical springs, because it is over and over again stated that they carry the car body and its load during all normal conditions; and also elliptical springs, which may run longitudinally of the truck or laterally thereof, because the inventor states, at line 67, page 1, that they "preferably" extend longitudinally, thus obviously including the transverse position as well. And these elliptical springs must necessarily be of less power than the spirals and are to be employed as supplements to them, being called into action only when conditions are abnormal.

Not only do the statements in the specification, above referred to, necessitate the presence in the structure of springs having the stated characteristics and bearing the stated relation to each other, but the prior art with which the applicant, Mr. Brill, was confronted, precludes a broader construction. This is shown in the history of the case as follows:

The file-wrapper & contents show that the case as originally filed embodied a large number of claims. Many of them, including the first four, were rejected on the Peckham patent 419,876 of January 21, 1890. In the applicant's answer to this, filed Sept. 21, 1891, he says, among other things:

"Robinson of record does not show nor describe the arrangement of springs of varying tension, nor springs adapted to supplement the action of other springs, nor springs coming into action before the others, nor the combination of spiral and elliptical springs for supporting the movable frame of the truck.

"Taylor of record does not show nor describe springs of
212 varying tension interposed between the movable frame and stationary frame; * * * nor does he show one series of springs adapted to act before the other, one supplementing the other.

"Peckham describes nothing about one set of springs being quicker or slower than the other, nor one series of springs being adapted to act prior to the other series."

In the official letter of October 21, 1891, the examiner says:

"It is not understood what is meant by saying 'one set of springs being slower in their action' than the other set, as set forth in claim 1 and in other claims. All that can be said is that one set of springs do not take a bearing or do not come into action until the other set have been partially compressed, and this quality is set forth in some of the claims. It is not seen how slow springs or fast springs can be properly a basis for claims.'"

In answer to this the applicant replied explaining that the terms

"quick" and "slow" springs were synonymous with the terms "stronger" or "weaker," and in attempting to differentiate his claims from the prior art cited by the examiner, says:

"Applicant has placed spiral springs primarily to support the weight of the car body, and has used the elliptical springs for the purpose of assisting the spiral springs in this regard after a certain compression of the spiral springs has been had. When the car body is depressed the spiral springs begin to take up this action, and a further depression of the car body falls upon both the spiral and the elliptical springs, the spiral springs sustaining the greatest amount of the weight. On the recovery the spiral springs exert the greatest lifting power, and by reason of their acting quicker than the elliptical springs, commence the lifting action before the elliptical springs come into play. The elliptical springs follow the spiral springs in the upward movement of the car body, and
213 during this upward movement, as well as at other times, they also act as equalizers, counteracting the end oscillation of the car body.

* * * * * * *

It is proposed in the present structure to use spiral springs slower than usual, and to assist the action of the spiral springs by elliptical springs slower in their action than the spiral springs, so that the spiral springs will permit the car body to ride easier and smoother, and the elliptical springs assisting the spiral springs after a certain amount of moving by the spiral springs has been had."

The examiner persisted in rejecting the claims 1, 2, 3 and 4, and the applicant in his letter of April 21, 1892, urged their allowance, stating persistently that his claims meant something different from the Peckham patent 419,876 and the others cited, saying:

"Applicant would state that he is not endeavoring to obtain a claim for the combination of quick and slow springs solely, but he is endeavoring to obtain claims for the combination with other elements of springs having certain capacities, by which combination results and modes of operation are obtained which are not shown or described in any patent heretofore cited by the office. * * *

As applicant has previously endeavored to explain, quick and slow springs means substantially the same thing as springs having lesser or greater carrying capacity. * * *

However, claims 1, 2, 3, 4 (as per last official letter), embody structural features in addition to those of the springs before stated."

The then pending claims 2 and 4 are substantially the claims 1 and 2 of the patent.

Thereupon, on May 24th, 1892, the examiner again rejected claims 1, 2, 3 and 4 "for reasons before given," and on May 27th, 1892, the applicant cancelled claims 1 and 3, claims 2 and 4 thus be-
214 coming 1 and 2 of the application; and thereafter, on June 1st, 1892, the examiner allowed the claims as then presented. The record does not disclose what transpired between the rejection of the four claims on May 27th, 1892, and the approval of the 2d and 4th on June 1st, 1892.

In view of these repeated assertions by applicant that his invention, as intended to be claimed in the claims 1, 2, 3 and 4 (two of which, the 2d and 4th, are the very claims 1 and 2 of the patent here under consideration), required the combination of spiral springs to normally support the car and its load, and weaker elliptical springs to act as supplements to the spirals, and at a later time, the examiner appears to have allowed the claims.

For the foregoing reasons I am clearly of the opinion that the structure referred to in the 1st and 2nd claims of the patent in suit must be limited to one in which the spiral springs are stronger than and control the elliptical springs, and also that they must be located adjacent to the saddles and not at the ends of the frames; because that arrangement of the parts, and that only, will perform the functions and secure the results made fundamentally necessary by the specification and by the record of the case in the Patent Office. And this construction of claims 1 and 2 is not in conflict with any of the other claims in the case; there are some claims which refer to the action of the elliptics being subsequent to that of the spirals, but there are none which make reference to the relative strength of the springs, and therefore that feature must be read into claims 1 and 2 in order that they may be within the invention.

I will briefly refer to the other claims in support of this:

Claim 3 contains a special limitation relative to a certain brace.

Claim 4 refers to the brace;

Claim 5 makes special reference to the same brace;

215 Claim 6. A special construction of the side beams and brace;

Claim 7. Special construction of the saddle, in conjunction with the said brace;

Claim 8. Special construction of the brace and saddle;

Claim 9. This is one of the claims which refers to the action of one set of springs being subsequent to the other;

Claim 10. This likewise refers with more detail to the subsequent action of one set of springs relative to the other.

Claim 11. Detail of construction of elliptical springs.

Claim 12. Detail of the saddle and brace and other parts.

Claim 13. Same as claim 12.

Claim 14. The differential time of the action of the springs.

Claim 15. Detail of brace and side beams.

Claim 16. Same as 15.

Claim 17. Detail of seats for the springs.

Claim 18. Same as 17.

Claim 19. Same as 17.

Claim 20. Tightening device for the brace.

Claim 21. Detail of brace and saddle construction.

Claim 22. Same as 21.

Claim 23. Same as 21.

Claim 24. Same as 21.

Claim 25. Detail of construction of the saddle, side beams and brace.

Claim 26. Same as 25.

Claim 27. Detail of support for the elliptics.

Claim 28. Brace and side beams.

It is clear that if claims 1 and 2 be broadened to include defendants' truck, then they will be completely met by the Peckham patent 419,876; and also the structure which they will then refer to will be entirely foreign to the Brill alleged invention and
216 directly antagonistic to the statements of his specification, because it is for the difference only, existing between Peckham and Brill; in other words, the special relation of the springs and the different characteristics which made Brill's claims allowable, as appears from the file-wrapper & contents.

I have carefully read the decision of his honor Judge Shipman in the Third Avenue case, and I find nothing therein antagonistic to the above view, or anything which justifies the assumption that he accorded to claims 1 and 2 a scope as broad as complainants now contend. Quite the reverse, the defendants' structure in the Third Avenue case was practically a fac-simile of the structure of the Brill patent. In it the springs bore the relation to each other as expressed in the patent, and their co-active relation to the Third Avenue Company's truck was practically identical with those of the patent. Under this state of facts Judge Shipman rendered his decision. The considerations presented on this present motion were in nowise presented to him, nor were the defenses arising from the differences existing in the defendants' truck in the Third Avenue case and the defendants' truck in this case in any manner passed upon by him.

That Judge Shipman did not intend to grant to Brill's claims 1 and 2 a scope so broad as is now contended for them, is shown conclusively, I think, by the language of his decision. When referring to the Manier patent he says that that invention was "not designed nor adapted, nor used for the performance of the functions performed by Brill's device, nor was the way to accomplish Brill's result suggested by Manier's invention."

Here is an implication that he regarded Brill's special result, and his special way of accomplishing that result, as something peculiar and necessarily present in the Brill invention. And I am confirmed in this view by the language of the decision concern-
217 ing the Diehl and Bird patents. The judge concludes relative to them as follows:

"Neither of these patents relates to the invention of Brill which was described in his specification. The Diehl patent has no relation to the invention as described in claim 10, and neither does the Bird patent touch the invention as stated in claim 9, although each of those claims, if read literally and not in accordance with the invention as described in the specification, is liable to the charge of being too broad. They should be construed in accordance with the invention as described in the specification, for the combination with the other named elements of spiral springs and elliptical springs located between the frames as described."

Here the judge clearly intimates that the statements contained in the specification necessarily determine the meaning to be given to

the claims. He repeatedly says so, and in conclusion he does not say spiral springs and elliptical springs located between the frames: on the contrary his language is "between the frames as described." This can only mean that those springs should be located and have the characteristics and be adapted to perform the functions—or, rather, have the operation—stated in the specification.

Again, when considering the Peckham patent 419,876, his honor says:

"This construction although it contains the name 'semi-elliptical spring,' has not the conjoint action of the patented combination, nor does it perform the function of the Brill device."

This seems to me unquestionably to suggest that the judge had in mind the peculiar action of the Brill construction in which the car with light loads was to be carried upon the spiral springs in a resilient, smoothly running manner, having also the elliptical
218 springs which should act as aids to the spirals in the event of excessive loads, or other abnormal conditions; the ellipties also aiding in controlling the oscillation.

Referring now to the trucks of the defendants: I find that they are, all three of them, essentially different in construction and method of operation from that of the patent in suit. The elliptical springs, instead of being the weaker, are stronger than and control the spirals. In two forms, that is to say the "Standard" and "Extra Long," the elliptical springs are inside of the outermost spiral springs; the latter being located at or near the extremities of the frames; and all of the springs in each of the three forms of truck at all times take a bearing and help to support the car and its load, the ellipties taking the greater portion thereof. The operation referred to in the Brill patent, of having the empty or lightly loaded car resiliently supported upon the spiral springs so as to normally take the weight of the car, with weaker elliptical springs supplementing the spirals, clearly is not present in either form of these Peckham trucks.

I further find that in the Peckham construction the coaction of the two kinds of springs is totally different from that required by the Brill patent, and is substantially the same as that which was originated by Mr. Peckham long prior to Brill's alleged date of invention. This manner is shown in the Peckham patent 419,876, in which he shows spiral springs located adjacent to the pedestals and semi-elliptic springs at or near the ends of the frames: and these springs at all times engage with both frames and exert their power thereon. In the construction specially referred to in the patent 419,876 Mr. Peckham uses a relatively large semi-elliptic spring extending transversely of the truck, supporting the upper frame centrally, its ends resting upon the lower frames at the two sides of the truck; but this is obviously the same structure as that shown in his "Excelsior" truck, for example. It is
219 utterly immaterial whether there be two elliptic springs, one at each side of the frames, or a larger and more powerful semi-elliptic extending between them. It will be remembered that the patent in suit covers a transverse as well as longitudinal arrange-

ment of the elliptics (see page 1, line 66 *et seq.*). The frictional contact between the large and long leaves of the transversely arranged semi-elliptic will equal, or approximately so, the frictional action between the much smaller leaves of the full elliptics. Any one at all familiar with car construction will see the full equivalency of one form for the other so far as the issues here in question are concerned. And I will say in this connection that evidently the Brills themselves believe this to be the fact, because in their latest and best effort of four-wheel car construction they show in their advertisement in the "Street Railway Review," page 143, of the issue of October, 1900, a combination of spiral and semi-elliptic springs, instead of the combination of spiral and full elliptics, as set forth in the patent in suit.

There is no difference mechanically between the construction of the Peckham patent 419,876 and that of his "Excelsior" truck, so far as questions here in issue are concerned; and if complainant's claims 1 and 2 are to be held to include a structure in which there are spiral springs and elliptical springs located between the extended sections of an upper and lower frame, then obviously this Peckham patent fully describes such a structure; and this was the view taken by Brill at the time of his application for the patent, and by the examiner who cited the Peckham patent on that application; and in order that he might avoid this Peckham reference Mr. Brill distinctly stated, as has been heretofore pointed out, that his invention was different from Peckham's because his spiral springs were the stronger and normally supported the car and its load, and his elliptics were weaker and supplemental only to the spirals, and it
220 was this special character and special relations of the springs only which he claimed.

On the question of end oscillation also the operation of the Peckham trucks in all three forms is essentially different from that of Brill. Under Brill's construction the elliptical springs are not rigidly connected with the upper frame; therefore oscillation of his car can obtain precisely as in the old forms of car; indeed, more easily, because his spirals are not so stiff as those formerly used, and in order to check this oscillation when it has once commenced, or to retard its action, Brill employs the weak elliptics, which, as stated in the specification, act as "buffers" to break up or at least retard the oscillating motion; consequently the action of Brill's outermost springs (the elliptics) is to control or arrest oscillation after once commenced; whereas the action of Peckham's elliptic springs, which at all times are in action, is to prevent oscillation. One is a retarder, the other a preventer.

Furthermore in the Peckham construction the springs between the frames are not primarily relied upon for preventing end oscillation; on the contrary, an additional set of springs, totally different in function, location and operation from anything suggested in the Brill patent, is the element especially provided for effecting this result. These are small spirals located beneath the so-called stationary frame and tied to the upper frame by a rod or bolt; and these

springs prevent excessive rising of the ends of the truck, without which objectionable oscillation cannot take place.

The allegation contained in the moving papers that this under-spring method of controlling the oscillation, employed by Peckham, is unsuccessful, is, I am informed, untrue; and from my own observation I believe it to be an error. At least, I *I* have personally seen a large number of Peckham trucks in operation, apparently giving complete satisfaction, with this attachment upon them.

221 I further say that the statements in the moving papers, to the effect that the control of end oscillation can only be successfully accomplished by the employment of spiral in conjunction with elliptical springs, and that all spiral springs or all elliptical springs would be inoperative, is distinctly not the fact. During the last few days, in conjunction with Mr. Newbury, Mr. Fowler, and others, I have witnessed very extensive experiments and tests on this point, and have myself with these gentlemen ridden upon a car provided with a Peckham "Extra Long" truck, approximately fifty miles in making these tests. The car used in making one portion of the tests was provided with all spiral springs between the two frames; and in the other portion of the tests elliptic and spiral springs were used in the manner shown in the cut designated as Peckham's "Extra Long" in the Exhibit I. The same car was used in both portions of the tests, the spiral springs being substituted in one portion of them for elliptic springs used in the other portion; and the load and speeds were the same in both series of tests.

From my personal and careful observation of the running of the car, and also from personal observation of the operation of the apparatus used to record the oscillations, I know and unqualifiedly state that the oscillations of the car and its general motions while running, at high speeds, at medium speeds, and at slow speeds, were at least no more in extent when the spiral springs were employed throughout, than when the elliptical springs were used in conjunction with the spiral springs; indeed, I distinctly noticed that the car motions were smoother and more comfortable when all spirals were used than when the spirals and ellipties were used.

And I further say that it is not true, as stated in complainant's moving papers, that the only reason Peckham combines elliptical springs with spiral springs is that he may avail himself of

222 the alleged improvement resulting from the Brill invention. On the contrary, other things being equal, Peckham's trucks would, in my opinion, be equally as good and cheaper to construct if all the springs employed were spiral springs; but it is better to employ some elliptic springs, locating them preferably near the extremities of the frames, in order that they (the frames) may be stayed together and prevented from a swaying movement, which results in "yawing" as it is sometimes called, of the car body relative to the truck; and this I understand is the sole reason for the employment of the elliptical springs in defendant's constructions. It will be observed that spiral springs are like so many elastic posts, the bottoms and tops of which are contained in suitable caps forming seats, but they have no hold upon either of the frames; therefore, excepting

for the spring posts which pass down through them with a more or less loose bearing in the frames, there is nothing to prevent lateral movement of the car body relative to the truck; and in order to control this movement it is necessary to interpose between the two frames, both of which are movable, and between which there cannot be any rigid bracing, some device adequate to stay them together, and the elliptical springs afford precisely this means in an effective and desirable form.

From the foregoing I am clearly of the opinion that claims 1 and 2 of the patent in suit describe a structure in which spiral and elliptical springs are to be interposed between the two frames; that the spirals are to be located near the pedestals; that they are to be stronger than and adapted to control the elliptics; and that the elliptics are not to come into action until the spirals have been materially compressed, or otherwise abnormally acted upon. This limitation I think is imposed upon these claims, not only by the express language of the specification and the proceedings in
223 the Patent Office, but also because otherwise the alleged new results claimed for the invention cannot be attained; and if the structure be considered broader than this and so as to include spirals and elliptics located between the frames irrespective of these stated characteristics, then the prior Peckham patent discloses fully the resulting structure.

Claim 2 is in effect the same as claim 1, excepting that the location of the springs relative to the frames is particularly stated.

I am further of the opinion that neither of the three forms of truck made and sold by defendants embody the structure or combination of either of said claims.

I cannot concur in many statements made by Mr. Livermore, complainant's expert. I will refer to a few instances:

He states in substance that Judge Shipman awarded to claims 1 and 2 of the patent in suit a construction which broadly covered the combination of spiral and elliptical springs interposed between the frames, without limitation of any kind whatever. I find no justification for this in the judge's decision, for reasons heretofore stated by me, and I believe that could not have been the intent of Judge Shipman, because if so, so many forms of truck would be included in these claims which would not embody in the slightest the specific construction described in the patent in suit, nor be capable of performing its functions. And also, such a construction of the claims would distinctly include the prior Peckham patent, and the judge had that patent before him and could not have so intended.

Again, Mr. Livermore refers to the rhythm of the two sets of springs, which was dwelt upon at considerable length in the Third Avenue case. As I regard the matter, there is no such thing in the operation of these trucks. It is true that owing to the fric-
224 tional contact between the leaves of an elliptic spring, or semi-elliptic, that its action is more sluggish than that of coiled or, as they have been called in this case, spiral springs; but that has nothing to do with the operation of the trucks. If all spiral springs were used, then the trucks would oscillate somewhat more quickly

than if all elliptics, or semi-elliptics, were used. And if the springs be part spiral and part elliptic, then a new period of rebound will be established not quite so quick as the spirals, nor quite so slow as the elliptics. But this would be constant and neither of the springs could be said to break up the action of the other.

Again, since the upper frame and the lower frame during the oscillation of the car lie at different angles to each other, obviously the springs, irrespective of their character, that are located near the point where the two frames approach each other closest, would receive the greatest compression and be put under the greatest strain. I have searched in vain through the moving papers for any evidence that tests of any kind have been made by complainants as a foundation for the positive assertions made on these abstruse physical phenomena, and I am not prepared to say just what the effect of the unequal compression of the springs above stated might be, but the fact that they will be unequally compressed is evident. Therefore I regard this entire question of the rhythm of movement as altogether a mistaken theory which has crept into this case through insufficient investigation and knowledge, and which has no sufficient basis in fact.

Again, I do not understand how complainant's expert can find this alleged rhythm, upon which their whole case seems to rest, in the "Standard" and "Extra Long" form of Peckham's trucks, because in them there are spiral springs outside of the elliptic springs where rhythmic action is supposed to take place, the elliptics being a considerable distance inside of them; and in addition to
225 this there is the underlying spring before referred to which must inevitably very much more than counterbalance this mystical rhythmic action.

Again, Mr. Livermore alleges that Mr. Peckham's use of the additional spiral spring beneath the truck frame, which he admits was used prior to Brill's invention, has been found "ineffectual for accomplishing the desired results," and that Mr. Peckham's use of the elliptical spring can be for no other reason than that he desires to avail himself of Brill's alleged rhythmic action. Both of these statements I consider erroneous. Peckham's underlying spring is perfectly effectual and I understand is embodied in upwards of eight thousand trucks now in operation, and without complaint; and the elliptics are used by him, as I am informed, solely for the purpose of staying the two frames against lateral or "yawing" movement.

The complainant's moving papers are all based upon the view that the essence of Brill's invention is the prevention of oscillation. As matter of fact, as I have pointed out, that is a secondary consideration. The specification reads, line 11:

"The main object of my invention is to enable a truck of comparatively short wheel base to be used and to support a car body upon it, the ends of which overhang the ends of the truck for some distance."

This clearly refers to the idea of supporting the car body on relatively weak spiral springs which shall alone sustain it when carry-

ing a light load, and providing in addition the supplemental and still less powerful elliptic springs which shall be called into action only for heavy loads; and this is stated to be the main object of the invention. The specification then proceeds, at line 16, stating a secondary or collateral result, as follows:

"My invention is also intended to overcome in a measure
226 the end vibration or oscillation of the car body and movable portions of the truck to which the car is secured."

I again call attention to the fact that Brill's method of supporting the car body, which is the main object of his invention, can only be attained when spiral springs having greater stiffness than the elliptical springs are employed, and they must be located adjacent to the pedestals.

Notwithstanding the fact that Mr. Livermore says that Mr. Peckham's underlying spring is a failure for prevention of oscillation, yet Mr. Brill in his affidavit states that in his opinion the trucks of all three of defendant's forms "are efficient in preventing or lessening oscillation," and he alleges this is because of the presence of spiral and elliptical springs. He makes no mention in the connection of Peckham's underlying springs, the special function of which is to prevent oscillation, and which was present, as I am informed and believe, in all forms of Peckham trucks to which he alludes.

PHILLIPS ABBOTT.

Subscribed and sworn to before me this 25th day of October, 1900.

W. O. SHAUGHNESSY,

[SEAL.] *Notary Public, New York Co.*

227 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and ANO.
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY ET AL.

Decision of Motion for Preliminary Injunction.

LACOMBE, *Circuit Judge:*

The only question presented is whether defendant's structure infringes. That involves the construction of the claims declared on and for the purpose of this motion the construction already adopted by this court on final hearing in the Third Avenue case should be followed for there is no prior patent, no prior use proved here which was not before Judge Shipman. It is true that in that case the defendant's device was a much closer copy than the one now under consideration, containing, as it did, the feature that the spiral springs came first into play and the further feature of depending caps in which the leaves of the elliptic springs play vertically, but the court most carefully indicates that the leading feature of the invention lies outside of these details; that the "gist of the invention consists in combining with the frame of the truck and the spiral springs other springs, viz., elliptical springs between the car body and the

extension of the independent frame;" the object being to break the rhythm of the springs, and thus do away with the galloping or rocking motion. The defendant here insists that there
228 is no rhythm broken, indeed, that there is no rhythm to break, and that the combination of the quotation does not do away with the galloping motion. On these points, however, the court should follow the earlier decision. There are additional rods and also spirals below the frame, which apparently in defendant's structure do their share in eliminating galloping; but the combination which Judge Shipman described as the gist of the invention is undoubtedly in defendant's structure, and under well-settled rules of practice complainant is entitled to a restraining order until final hearing.

Endorsed: Circuit court of the United States for the southern district of New York—John A. Brill *et al. vs.* The Peckham Motor Truck Co.—Opinion, Lacombe, C. J.—Filed Dec. 3, 1900.

229 *Injunction Order.*

United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, *vs.* PECKHAM MOTOR TRUCK & WHEEL CO., Edgar Peckham, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.	In Equity.	No. 7630.

This cause having come on for hearing upon a motion on behalf of the complainants, for a preliminary injunction to restrain the respondents from infringing upon the rights of the complainants under claims 1 and 2 of letters patent of the United States to G. M. Brill, No. 476,218, dated July 5, 1892, in suit, and the bill of complaint; a copy of the opinion of Judge N. Shipman, in the case of Brill *v.* Third Avenue Railroad Co.; a copy of Brill patent No. 478,218, in suit; notice of motion; and upon the affidavits in support thereof; viz: affidavit of John A. Brill, verified October 13, 1900; containing Exhibit A. Photograph copy of page from Street Railway Journal, October, 1889; Exhibit B, blue print, sketch from back of "Complainant's Exhibit," Brill Letter, No. 2; Exhibit C, blue print from Brill letter; Exhibit D, blue print, Complainant's Exhibit Brill Tracing No. 1, Brill *v.* Third Ave. R. R. Co.; Exhibit E, copy Brill patent 478,218; Exhibit F, copy Brill assignment, of December 3, 1894; Exhibit G, Brill assignment, July 6, 1897;
230 Exhibit H, copy disclaimer of October 12, 1900; Exhibit — copy of decree of July 26, 1900, Brill *vs.* Third Ave. R. R. Co.; copy final decree, Brill *v.* Third Avenue R. R. Co.; Exhibit I, photograph of page 135 of Street Railway Journal; affidavit of Charles G. Hensley, verified October 15, 1900, and Exhibit X, photograph

of Peckham works; affidavit of C. W. Benjamin, verified October 13, 1900, and two photolithographs of defendant's "Excelsior," "Standard" and "Extra Long" trucks; affidavit of John N. Ackerman, verified October 12, 1900; affidavit of G. M. Brill, verified October 13, 1900; affidavit of Joseph P. Livermore, verified October 11, 1900; affidavit of James Fagan, verified October 13, 1900; affidavit of Vincent Anderson, verified October 13, 1900; affidavit of S. M. Curwen, verified October 13, 1900; *affidavit of S. M. Curwen, verified October 13, 1900;* affidavit of Harvey M. Littell, verified October 12, 1900; affidavit of service of C. G. Hensley, verified October 15, 1900; Defendant's Exhibit, Model of Truck Frame, "Standard Truck;" affidavit of C. G. Hensley, verified October 22, 1900, and notice of presenting same at hearing; affidavit of service of same; and copies of patents attached thereto, viz: Peckham, numbers 419,876; 419,877; 419,878; 424,723; 440,189; 458,749; 464,253; 467,896; 471,061; 555,526; 555,530; 563,685; 599,474; and upon affidavits in opposition thereto, viz: affidavit of E. Peckham, verified October 25, 1900; James J. McGowan, verified October 25, 1900, with cut of Excelsior No. 7–B from Street Railway Journal attached, and Extra Long, Metropolitan special; affidavit of Jacob R. Beetem, verified October 26, 1900; Henry F. Newbury, verified October 26, 1900; and Phillips Abbott, verified October 25, 1900; and was argued by Francis Rawle, Esq., and Frederick P. Fish, Esq., on behalf of complainants, and by Henry P. Wells, Esq., on behalf of respondents, and thereupon, upon consideration thereof, and upon motion

231 of Joseph L. Levy, Esq., complainants' solicitor, it is

Ordered, adjudged and decreed, that an injunction be issued out of and under the seal of this court, enjoining and restraining the defendant The Peckham Motor Truck & Wheel Co., and its officers, agents, attorneys and workmen; and Edgar Peckham individually and as the president and director of said Peckham Motor Truck & Wheel Co., and Theodore Spore individually, and as the secretary and a director and officer of said Peckham Motor Truck & Wheel Co.; and W. G. Price, and Erwin G. Long, individually, and as directors and officers of said Peckham Motor Truck & Wheel Co.; and the said Motor Truck & Wheel Co.; and Edgar Peckham, W. G. Price, Erwin G. Long, and Theodore Spore, individually or as officers or directors, or as agents for the said Peckham Motor Truck & Wheel Co., and the officers, agents, attorneys, servants and workmen of the said Peckham Motor Truck & Wheel Co., while directly or indirectly acting for or in consort or in conjunction with or for the Peckham Truck Co. so called, or the Peckham Manufacturing Co. so called, or any other person, firm or corporation, from directly or indirectly making or causing to be made, selling or causing to be sold, using or causing to be used, or advertising for sale, or making or shipping or selling in parts to be subsequently assembled for use or sale, any street or other car trucks constructed in accordance with or like those, shown in Exhibit I, attached to the affidavit of John A. Brill, filed in this cause, and therein designated as "Excelsior," "Standard," "Extra Long," respectively, or any substantial embodiment thereof, and any other street or car trucks containing or

embodying, or in any way embodying, counterfeiting, or imitating any of the inventions described in the said letters patent and claimed as new in claims 1 and 2 thereof, or any other substantial
232 embodiment or combination of elements recited in said claims, and from infringing upon the rights of the complainants under claims 1 and 2 of the said letters patent, by the manufacture, sale or use of street car trucks involving or embodying the subject-matter of claims 1 and 2 aforesaid, or in any other manner whatsoever, and that the said injunction do stand until the final hearing of this cause.

December 14, 1900.

E. HENRY LACOMBE.
U. S. Circuit Judge.

Endorsed: U. S. circuit court, Filed December 14, 1900, John A. Shields, clerk.

233 *Order Suspending Temporary Injunction.*

United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants,
vs.
PECKHAM MOTOR TRUCK & WHEEL CO., EDGAR PECKHAM, W. G. Price, Erwin G. Long, John H. Bickford, and Theodore Spore, Defendants.

Upon the motion of defendants, based upon the papers upon which order for temporary injunction was issued, the operation of said injunction is suspended until the hearing and determination of an appeal from this order to be taken by said defendants within five days to the United States circuit court of appeals for the second circuit, with leave, however, to the complainants to move this court, upon reasonable notice to the defendants for the vacation of this suspending order should the prosecution of said appeal on the part of the defendants be unreasonably delayed.

Dec. 14, 1900.

E. H. LACOMBE, *U. S. C. J.*

Endorsed: Circuit court of the United States for the southern district of New York. John A. Brill and The J. G. Brill Company *vs.* Peckham Motor Truck & Wheel Co. *et al.*—Opinion, Lacombe, C. J.—U. S. circuit court, Filed Dec. 14, 1900, John A. Shields, clerk.

234 *Judge Shipman's Decision in Third Avenue Case.*

Circuit Court of the United States for the Southern District of New York.

JOHN A. BRILL
vs.
THIRD AVENUE RAILROAD COMPANY.

This bill in equity is based upon the infringement of claims 1, 2, 9, 10, 11, 12, 14, 17 and 27 of letters patent No. 478,218, applied for June 26, 1891, and issued on July 5, 1892, to George Martin Brill for an improvement in car trucks. Although the patentee conceived the idea of the invention of claims 1 and 2 in May, 1889, and made rough sketches of it, he laid it aside and did not take it up again until November, 1890. He made drawings in December and completed the trucks containing the whole invention in January, 1891. The date of the invention may be considered to have been December 8, 1889. These claims are as follows:

"1. In a motor truck, the combination, with a stationary frame supported upon the running gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable
235 and stationary frames, and elliptical springs located between the extended sections of the said rigid frame and the movable frame, substantially as described.

"2. In a truck, a spring-supporting frame supported upon the running gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, substantially as described.

"9. In a truck, the combination of two frames, one stationary and supported upon the running gear, the other movable, and a plurality of springs located between the stationary and movable frames, some of said series being adapted to be compressed by the downward movement of said movable frame subsequent to the compression of other of the series, substantially as described.

"10. In a truck, the combination of two frames, one stationary and supported upon the running gear of the truck, the other adapted to be moved toward said stationary frame, springs located between the ends of both frames, and springs otherwise disposed between the two frames, the end springs being adapted to be compressed subsequent to the compression of the other springs, substantially as described.

"11. In a truck, a stationary spring-supporting frame having at its ends elliptical springs rigidly secured thereto, in combination with a movable frame supported by springs other than said elliptical springs, said movable frame being provided with devices for engaging said elliptical springs, the elliptical springs being adapted

to be brought into action subsequent to the springs supporting the movable frame, substantially as described.

236 "12. In a truck, a spring-supporting stationary frame mounted on the running gear of said truck, said frame being composed of a plurality of bars contiguously disposed, a saddle secured to the outer sections of the said bars, an elliptical spring, the lower section of which rests upon said saddle, and a second saddle disposed over the first and the spring and secured to the first saddle, a movable frame, spring-supported upon the stationary frame and having devices for guiding the upper section of the elliptical spring, substantially as described.

"14. A truck having running gear and a frame, and spiral springs for supporting the car body, supplemented by elliptical springs adapted to co-act therewith, the spirals being adapted to be compressed prior to the ellipticals, substantially as described.

"17. The upper chord having the depending cap 45, with downwardly extending legs 46, and elliptical springs held on the side beams, adapted to move in said cap, substantially as described.

"27. In a truck, a stationary spring-supporting frame mounted on the running gear of said truck, having outwardly extending sections and elliptical springs secured to the stationary frame, and a movable frame, spring-supported upon the said stationary frame, having a device for guiding the upper portion of the elliptical springs, substantially as described."

One hundred and eighty-one infringing trucks were purchased by the defendant from the Bemis Car Box Company of Springfield, Massachusetts, which it is admitted "is defending the present suit for the Third Avenue Railroad Company."

237 SHIPMAN, *C. J.*:

After electricity was substituted upon city railroads as a motive power to move cars formerly drawn by horses, the railroad corporations were subjected to great expense and the passengers to severe inconvenience in consequence of the oscillation of the cars from end to end, or "galloping" motion as it was called. The horse cars were sixteen feet long and had a wheel base or distance between the two pairs of wheels of six to seven and one-half feet. The new electric cars were from eighteen to twenty-two feet long, but, in consequence of the short radii of curves in city streets where cars turn from street to street, it was necessary to keep the wheel base about as short as before to enable the car to pass around the curves and, therefore, the car body was longer than the truck and overhung it. The result was that these overhanging and unsupported ends oscillated, pounded the rails, strained the trucks and caused discomfort, and, on heavily laden open cars, danger to the passengers. The patentee says in his specification, "The main object of my invention is to enable a truck of comparatively short wheel base to be used, and to support a car body upon it, the ends of which overhang the truck for some distance. My invention is also intended to overcome in a measure the end vibration or oscilla-

tion of the car body and movable portion of the truck to which the car is secured."

In the patented structure, a pair of rigid longitudinal side beams, which derive their support from the axle boxes, extend lengthwise of the truck beyond the wheels at each end and are called the "independent frame." At each side of each beam a spiral spring is interposed between the beam and the spring plates upon which the car body rests and to which it is rigidly secured. These spring plates are secured to a rectangular frame called the "movable portion" of the truck. At each side of the car there are two spring
238 plates and four spiral springs, two between each plate and corresponding longitudinal beam or saddle, thus making a set of eight springs, called axle-box springs. These springs, supported as they are upon a space equal to the length of the wheel base, cannot firmly support a car body of the length of the ordinary trolley car, and a multiplication of spiral springs between the wheels and the end of the car was also inadequate. The gist of the invention consisted in combining with the frames of the truck and the spiral springs, another class of springs, viz., elliptical springs, between the car body and the extensions of the independent frame. The elliptical springs are slower in their action than the spiral springs and neutralize the longitudinal oscillation of the car body. Mr. Akarman, a practical trolley railroad superintendent, stated the result and the reason of it, as follows:

"From a practical observation my opinion is that the combination of an elliptical and spiral spring, as applied in trucks of this type, breaks the rhythm of motion or interrupts it. In trucks with all spiral springs, or I should think, if it were possible to construct a truck having all elliptic springs, the rhythm of motion is perfect, the springs acting in unison. In the truck, as previously described, having the combination of elliptic and spiral springs, the rhythm is broken and the result is that the galloping or rocking motion was done away with."

This leading feature of the invention is described in claims 1 and 2, which do not contain the limitations of the invention described in the next paragraph. A second and minor feature of the invention described in claims 9, 10, 11 and 14, is such an arrangement of the elliptical springs with the car body that they "will not come into play until after the axle-box springs have begun to compress, and the action of the spiral springs in lifting the car body is continued after the elliptical springs have ceased to act." The
239 elliptical springs are not depressed until the car body or one end of it has become depressed by the weight of the passengers or some other cause, when this slower motion interposes and checks the continuation or increase of oscillation.

A third and more subordinate feature of the invention is described in claims 12, 17 and 27, and consists in the construction by which the elliptical springs are engaged with the independent frame of the truck and car body. One feature of this construction is that, as described by the complainant's expert, the "upper member of the spring is not positively connected with the movable portion of the

truck, but the latter is provided with a 'cap' or bearing piece secured to the under side of the upper chord of the movable portion, said cap having downward extending projections or legs at each side of the upper member of the elliptical spring, which confine the spring in proper position under the cap while permitting of independent vertical movement of the bearing plate and spring, so that the former may, if necessary, rise clear of the spring."

The invention, as a whole, attracted the immediate attention of railway superintendents, was found to accomplish its object and to be almost a complete remedy, and trucks having spiral springs next to the axle boxes and elliptic springs on the extensions of the truck frame have been universally adopted.

Upon the question of the novelty of the invention described in claims 1, 2, 11, 12 and 14, the defendant's expert puts great stress upon letters patent No. 409,993, dated August 27, 1889, to Benjamin F. Manier. One object of Manier was to prevent oscillation and to accomplish it he employed an extended spring base and mounted the body springs forward of the axles. He said that oscillation was noticeable in cars mounted on trucks wherein the body springs are on both sides of the axles and near the centre of the truck, and that the mounting of the body springs forward of the axles he considered a special feature of his invention. The springs or the kind of
240 springs which he was to use are no part of his invention. He says, "Preferably I employ spiral springs G, as shown in figure 1, for supporting caps I, but, if desired, the elliptic springs *g* could be employed, as shown in figure 3, or other forms of springs may be used as found convenient and desirable, the particular form of spring not forming part of present invention." Manier's invention was entirely apart from that of Brill, and had no conception of its character. The only ground upon which the expert can place his theory is that in Fig. 3 the two different forms of springs, spiral and elliptic, are shown, and upon this drawing the entire superstructure of anticipation is built. Manier's invention was not designed, nor adapted, nor used for the performance of the function performed by Brill's device, nor was the way to accomplish Brill's result suggested by Manier's invention (Topliff *v.* Topliff, 145 U. S., 156).

In regard to claims 9, 10, 11 and 14, the defendant's expert did not find in the prior art a combination which included the feature of the compression of the spiral springs prior to the action of the elliptical springs or a provision for bringing those springs into action subsequent to the springs supporting the movable frames, but, as claim 9 refers to a plurality of springs, he finds that claim to have been anticipated by the patent to Horace G. Bird, No. 436,031, of September 9, 1890, and also that the terms of claim 10 were anticipated by the patent to John Diehl, No. 396,272, of January 15, 1889.

The Bird structure had one set of springs between the axle boxes and the intermediate frame, and another set between this frame and the car body, all of these springs being spiral, and as the different sets were of different strength, the patentee thought that by the inequal-

ity of their vibrations, the oscillation of the car body would tend to neutralize that of the truck, and, as a result, excessive lengthwise rocking motion would be obviated. No substantial difference in the time of compression was intended, but there would be a difference in the amount of compression, which would be greater in the lighter springs.

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The Diehl patent is for springs for a vehicle, and consists of a bar, a single semi-elliptic lengthwise spring secured to the central portion of the bar, and two spiral springs of different lengths arranged to depend from each end of the bar, whereby one of the spiral springs is always in contact with the semi-elliptic spring. Supplemental spiral springs are adapted to be brought into action after the main spiral springs have been excessively compressed. Neither of these patents relate to the invention of Brill which was described in his specification. The Diehl patent has no relation to the invention as described in claim 10, and neither does the Bird patent touch the invention as stated in claim 9, although each of those claims if read literally and not in accordance with the invention as described in the specification, is liable to the charge of being too broad. They should be construed in accordance with the invention, as described in the specification, for the combination with the other named elements of spiral springs and elliptical springs located between the frames as described. The defendant's expert referred also to the Brill patent No. 357,811, and the Richard Vose patents for rubber centre spiral springs or metallic spiral springs, Nos. 199,945, 347,281 and 350,174. The Brill patent is unimportant in this connection, and the Vose patents relate simply to spiral springs which act successively under compression.

In regard to claims 17 and 27, the defendant's expert was unable to point to anything in the prior art which contained the particular construction or the elements of those claims.

The expert referred in his direct examination only to the Manier, Bird, Diehl, Brill and Vose patents "as showing most clearly constructions which I (he) considered as the best anticipations of the alleged invention of the patent in suit and particularly to the subject-matter of claims 1, 2, 9, 10, 11, 12, 14, 17 and 27."

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His attention was afterwards called by the defendant to nineteen other patents and in regard to which he testified. Four of them were issued after the date of the Brill application. The remaining fifteen have no bearing upon the question of anticipation and were commented upon, probably to have an effect upon the question of invention. I do not think that any of them calls for remark, except the Edgar Peckham patent, No. 419,876, dated January 21, 1890. In this car truck, between the end portions of the lower beams and the car sill, suitable springs were interposed, either spiral springs or a semi-elliptic spring which was disposed transverse to the car body and rests with each end secured to the top of the lower beam. The upper beams are supported on spiral springs on the axle boxes. This construction, although it contains the name semi-elliptic spring, has not the conjoint action of the patented combination, nor does it perform the function of the Brill device.

The contest in regard to infringement related to claims 9, 10, 11 and 14, the controversy being whether the elliptical springs in the defendant's trucks were so arranged with reference to the car body that the weight came upon them as soon as it came upon the spiral so that there was no compression of the spirals before the weight began to come upon the elliptics. The defendant offers testimony in support of this theory, but in view of the strength of the affirmative testimony offered by the complainant upon the issue of infringement it was inadequate. A very intelligent carpenter who helped to ship the trucks in question from Springfield to New York testified that both classes of springs began to be compressed at the same time, and was undoubtedly honest in his opinion, but the strength of the testimony is that when the trucks first came to New York and the car bodies were put in place the spiral springs carried the weight of the body and the elliptics were a reinforcement to carry the passenger weight. It is noticeable that the managers of the Bemis Company and those officials who made the plans and constructed the trucks, and could have described and shown the plan of construction upon which their trucks were made, did not testify on this point.

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The only remaining question is that of patentable novelty. It has already appeared that the gist of the invention is described in claims 1 and 2. The necessity for a remedy against the pounding of the car, the importance of the result, the adoption of the invention by experienced railway superintendents, the number of previous attempts at a remedy and the barrenness of their results go far to show that the work of an inventive mind was required and was active in the invention. The testimony of the defendant's expert itself, as he goes through the history of the art and thereby points out what the patentee's combination did, as compared with previous efforts to do something, shows that the patented improvement was patentable. The result of the minor invention of claims 9, 10, 11 and 14 was important, though upon first inspection its marked importance does not appear, but it perfected the general invention of the first two claims. The combination shown in claims 12 and 27 was patentable. The simple combination in claim 17 of the upper chord with its depending cap and downwardly extended legs and elliptical springs does not appear to me to have been patentable.

Let there be a decree, with costs for an injunction against the infringement of claims 1, 2, 9, 10, 11, 12, 14 and 27, and for an accounting if it is asked for.

(Endorsed:) U. S. circuit court for the southern district of New York.—John A. Brill *v.* Third Avenue Railroad Company.—Opinion.—Shipman, C. J.—U. S. circuit court.—Filed Jul- 9, 1900.—John A. Shields, clerk.

245 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY *against* THE PECKHAM MOTOR TRUCK & WHEEL Company, Edgar Peckham, W. G. Price, Erwin G. Long, and Theodore Spore.	In Equity. No. 7630.

Petition of Appeal.

To the honorable the judges of the circuit court of the United States of America for the second circuit:

The petition of The Peckham Motor Truck & Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long and Theodore Spore, the defendants above named, respectfully shows:

That on or about the 15th day of October, 1900, the complainants above named filed their bill of complaint in this suit against your petitioners alleging the issue of letters patent of the United States of America for alleged improvements in car truck, to George Martin Brill, of Philadelphia, Pennsylvania, which said patent is numbered 478,218 and dated July 5, 1892; alleging that said letters patent had been duly assigned to John A. Brill, one of the complainants above named, and that the said J. G. Brill Company, one of the complainants above named, was the exclusive licensee thereunder for the entire United States; alleging that your petitioners have unlawfully infringed upon said letters patent; and praying,
246 among other things, for a preliminary and also a permanent injunction, enjoining your petitioners, their officers, agents, attorneys, servants and workmen from making, using and selling car trucks described and claimed in said letters patent.

That on or about the 15th day of October, 1900, said complainants filed with the clerk of this court a notice of motion to be made on the 19th day of October, 1900, for a preliminary injunction, said notice being accompanied by certain affidavits and exhibits.

That on said 19th day of October, 1900, your petitioners appeared at said hearing at said court by their solicitor and counsel and obtained an adjournment of the hearing of said motion until the 26th day of October, 1900.

That on said 26th day of October, 1900, your petitioners again appeared in said court by their solicitor and counsel and filed certain affidavits and exhibits in opposition to said motion for said preliminary injunction, and said motion for said preliminary injunction was then argued before the Honorable E. Henry Lacombe, one of the judges of the said court, by counsel for the respective parties to this suit.

That on the 3d day of December, 1900, his honor, Judge E. Henry Lacombe, rendered and filed his opinion to the effect that said preliminary injunction should be granted, and that on or about the 14th day of December, 1900, an order and decree was entered herein

directing a preliminary injunction to issue against your petitioners, their officers, clerks, agents, attorneys, servants and workmen, enjoining that they desist from making, using or selling any articles described in said letters patent and cited in the first and second claims thereof. At the same time, to wit, the 14th day of December, 1900, upon motion of the defendants an order was made by his honor, Judge E. Henry Lacombe, suspending the operation of said injunction order until the hearing and determination of an
247 appeal from said order to the United States circuit court of appeals for the second circuit, provided said appeal be taken by the defendants within five days.

Wherefore your petitioners, feeling themselves aggrieved by the said opinion and the said interlocutory order or decree entered herein on the 14th day of December, 1900, granting said preliminary injunction against your petitioners, do hereby appeal therefrom to the United States circuit court of appeals for the second circuit and pray that their said appeal may be allowed and a citation directed to the above-named complainants, commanding them to appear before the United States circuit court of appeals for the second circuit, to take and receive what may pertain to justice to be taken in the premises, and that a transcript of said bill of complaint and said notice of motion for preliminary injunction, with all affidavits and exhibits accompanying it, and of all affidavits and exhibits filed by your petitioners in opposition to said motion for injunction, and of said opinion, and of said order and decree for preliminary injunction, and of all pleadings, papers, affidavits and exhibits in any way relating to either of the same, all duly authenticated, may be transmitted to the said circuit court of appeals for the second circuit for a review therein.

(Signed) HENRY P. WELLS,
Solicitor for Defendants.

And now on this 15th day of December, 1900, on motion of Henry P. Wells, Esq., solicitor for defendants, it is ordered that the above appeal be allowed as prayed for.

Dated December, 1900.

(Signed) E. H. LACOMBE,
U. S. Circuit Judge.

Endorsed: Circuit court of the United States for the southern district of New York—John A. Brill and The J. G. Brill Company vs. Peckham Motor Truck & Wheel Co. *et al.*—Petition on appeal. Motion to file certified check in lieu of bond on appeal.—U. S. circuit court, filed Dec. 17, 1900, John A. Shields, clerk.

248 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY
against
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY, EDGAR PECKHAM, W. G. PRICE, ERWIN G. LONG, and THEODORE SPORE.
} In Equity. No. 7630.

Motion to File Certified Check in Lieu of Bond on Appeal.

Now come the defendants above named and move that a certified check for the sum of two hundred and fifty ($250.00) dollars be deposited with the clerk of this court in lieu of a bond on appeal.

Dated December 15th, 1900.

(Signed) HENRY P. WELLS,
Solicitor for Defendants.

249 *Order to File Certified Check.*

United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY
against
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY, EDGAR PECKHAM, W. G. PRICE, ERWIN G. LONG, and THEODORE SPORE.
} In Equity. No. 7630.

A motion having been made that the defendants in the above-entitled cause be allowed to deposit a certified check for the sum of two hundred and fifty ($250.00) dollars with the clerk of this court in lieu of a bond on appeal, it is

Ordered that such deposit when made shall take the place of a bond on appeal and the clerk is directed to receive said certified check for the sum of two hundred and fifty ($250.00) dollars in place of such bond.

(Signed) E. H. LACOMBE,
U. S. Circuit Judge.

Certified check for the sum of two hundred and fifty ($250.00) dollars in lieu of bond on appeal received by me this 15th day of December, 1900.

JOHN A. SHIELDS, *Clerk.*

Endorsed: Circuit court of the United States for the southern district of New York—John A. Brill and The J. G. Brill Company vs. Peckham Motor Truck & Wheel Co. *et. al.*—Petition on appeal, Order to file certified check in lieu of bond on appeal.—U. S circuit court, filed Dec. 17, 1900. John A. Shields, clerk.

250 United States Circuit Court, Southern District of New York.

JOHN A. BRILL and THE J. G. BRILL COMPANY,
against
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY, EDGAR PECKHAM, W. G. PRICE, ERWIN G. LONG, and THEODORE SPORE.

In Equity. No. 7630.

Assignment of Errors.

And now come the defendants above named by their solicitor, and present, with the accompanying petition for appeal from the order granting a preliminary injunction in this cause, the following assignments of error.

First. The court erred in not holding that the first and second claims (being the only claims of which infringement is charged) of the patent in suit, to wit, letters patent No. 478,218, dated July 5th, 1892, to George Martin Brill for "car truck," were valid, if valid at all, only when limited to the specific construction described in the specification and shown in the drawings of said patent.

Second. That the court erred in holding that defendants' car trucks embodied the elements of said first and second claims of the said patent in suit.

Third. That the court erred in not holding that defendants' constructions did not infringe the first and second claims of said patent in suit.

251 Fourth. The court erred in not holding that defendants' car trucks differed in construction from and operated upon a different principle from the car trucks shown and described in the patent in suit.

Fifth. The court erred in not denying complainants' motion for preliminary injunction.

Sixth. The court erred in holding that in any or all the circumstances of the case a preliminary injunction should issue.

Wherefore, said respondents pray that the said order of the said United States circuit court for the southern district of New York be reversed, and the said circuit court be directed, by the mandate of the United States circuit court of appeals for the second circuit, to enter an order denying the motion for preliminary injunction, and for such other and further relief as shall seem just in the premises.

New York, December 17th, 1900.

(Signed) HENRY P. WELLS,
Defendants' Solicitor.

Endorsed: Circuit court of the United States for the southern district of New York—John A. Brill and The J. G. Brill Company, *vs.* Peckham Motor Truck & Wheel Co. *et al.*—Assignment of errors, U. S. circuit court, filed December 17, 1900, John A. Shields, clerk.

252 *Citation.*

By the Honorable E. Henry Lacombe, one of the judges of the circuit court of the United States for the southern district of New York, in the second circuit.

To John A. Brill and the J. G. Brill Company, Greeting:

You are hereby cited and admonished to be and appear before a United States circuit court of appeals for the second circuit, to be holden at the borough of Manhattan in the city of New York, in the district and circuit above named, on the 15th day of January, 1901, pursuant to a petition on appeal filed in the clerk's office of the circuit court of the United States for the southern district of New York, wherein The Peckham Motor Truck & Wheel Company, Edgar Peckham, W. G. Price, Erwin G. Long, and Theodore Spore are defendants, and you are complainants, to show cause, if any there be, why the injunction order in said petition on appeal mentioned should not be corrected and speedy justice should not be done in that behalf.

Given under my hand at the borough of Manhattan, in the city of New York, in the district and circuit above named, this 17th day of December, in the year of our Lord, one thousand nine hundred, and of the Independence of these United States the one hundred and twenty-fifth.

(Signed) E. H. LACOMBE.
Judge of the Circuit Court of the United States for the Southern District of New York, in the Second Circuit.

Endorsed: Circuit court of the United States for the southern district of New York—John A. Brill and The J. G. Brill Company vs. Peckham Motor Truck & Wheel Co., *et al.*—Citation. U. S. circuit court, filed December 17, 1900, John A. Shields, clerk.

253 UNITED STATES OF AMERICA, } ss:
Southern District of New York, }

I, John A. Shields, clerk of the circuit court of the United States of America, for the southern district of New York, in the second circuit, do hereby certify that the foregoing pages, numbered from 1 to 252 inclusive, contain a true and complete transcript of the record and proceedings had in said court, in the cause entitled John A. Brill and The J. G. Brill Company, complainants, against The Peckham Motor Truck and Wheel Company, *et al.*, defendants, as the same remain of record and on file in my office.

In testimony whereof, I have caused the seal of the said court to be hereunto affixed, at the city of New York, in the southern district of New York, in the second circuit, this 14 day of January, in the year of our Lord one thousand nine hundred and of the Independence of the said United States the one hundred and twenty-fifth.

JOHN A. SHIELDS, *Clerk.* [SEAL.]

254 United States Circuit Court of Appeals for the Second Circuit, October Term, 1900.

Submitted March 13, 1901; decided April 3, 1901.

JOHN A. BRILL and THE J. G. BRILL Company, Complainants, Appellees,

vs.

THE PECKHAM MOTOR TRUCK AND Wheel Company *et al.*, Defendants, Appellants.

No. 139. Appeal from the Circuit Court of the United States for the Southern District of New York. Before Judges Wallace, Wheeler, and Thomas.

WALLACE, *Circuit Judge:*

If the first and second claims of the patent in suit (letters patent to Geo. M. Brill, No. 478,218, dated July 1st, 1892), require a construction limiting the combination therein specified to one in which the spiral springs and elliptical springs are so arranged that the latter are not brought into action until after the former have begun to compress, the car trucks of the defendant do not infringe the claims. In the car trucks of the defendant both sets of springs are brought into action and begin to compress simultaneously when the weight upon them is greater than the normal weight of the car. In granting the order for a preliminary injunction, which has been appealed from, the court below adopted the construction which had apparently been placed upon these claims in the suit of Brill *vs.* Third Avenue Railroad Company. In that action the infringement of these claims, as well as that of several other claims in the patent, including numbers 9, 10, 11 and 14, was alleged by
255 the complainant, and the question of their validity as well as their infringement was strenuously contested; and upon final hearing the court adjudicated the validity of all the claims and held them to be infringed by the defendant. Inasmuch, however, as the infringing car trucks embodied the combinations specified in all the claims, it was not necessary in that case for the court to accurately define claims 1 and 2 in order to determine what if any limitations not expressed therein were to be read into them by implication.

The two claims are as follows:

"1. In a motor truck, the combination, with a stationary frame supported upon the running gear, said frame having sections extending outwardly from the axle, of a movable frame supported upon said truck, spiral springs located between the movable and stationary frames, and elliptical springs located between the extended sections of the said rigid frame and the movable frame, substantially as described."

"2. In a truck, a spring-supporting frame supported upon the running gear by saddles and having sections extending outwardly from the axles, a movable frame having like extensions, spiral springs located between the saddles and movable frame, and elliptical springs located between the spring-supporting frame and the movable frame, substantially as described."

In the opinion in Brill vs. Third Avenue Railroad Co. the court used this language: "The gist of the invention consisted in combining, with the frame of the truck and the spiral springs, another class of springs, viz., elliptical springs, between the car body and the extensions of the independent frame. The elliptical springs are slower in their action than the spiral springs, and neutralize the longitudinal oscillation of the car." The record in that suit is a part of the record now before the court, and upon this record, supplemented by the depositions and documents introduced upon the motion for the preliminary injunction,

256 the appellants insist that a narrower interpretation should be placed upon the claims than seems to have been given them in the former suit and accepted by the court below. They urge that the prior state of the art does not permit a construction of the claims which will include every combination of spiral and elliptical springs with the other elements of either claim, and that the claims must be limited by the language of the description in the patent to a combination in which the springs have a definite mode of operation.

The patent, so far as concerns the employment of the springs, is for an invention which is intended to diminish the end vibration or oscillation of the car body, known as "galloping," when moving over the track, and which in the long cars having a comparatively short wheel base is especially obnoxious. Its distinguishing feature is the employment of two kinds of springs, spirals for supporting the car body above the axle boxes, and elliptic for supporting it at the ends. Brill was not a pioneer in the use of springs for this purpose. Among the patents granted before the filing of the application for the patent in suit, the two in the prior art showing the nearest approximation to the invention of Brill are No. 409,993, granted August 27, 1889, to Benjamin F. Manier, and No. 419,876, granted January 21, 1890, to Edgar Peckham. Manier's patent describes the employment of springs for the purpose of obviating the rocking or oscillating movement of the car body. The specification contains this statement: "Preferably I employ spiral springs G, as shown in figure 1, for supporting caps I; but, if desired the elliptical springs *g* could be employed, as shown in figure 3; or other forms of springs may be used, as found convenient and desirable, the particular form of spring not forming a part of the present invention." This patent shows every element of the first claim of the patent in suit broadly considered, except the conjoint use of spiral and elliptical springs, one of the drawings showing spiral springs only, and the other showing elliptical springs only. The patent does not show the combination of the second claim because the saddles are absent.

257 The invention in the prior patent to Peckham "consists in a novel construction of a car truck designed to afford spring supports under the end portions of the car body as well as the axles, and thus support said body nearly throughout its length and also obviate in a great measure the vertical oscillation of the same when moving over an undulating track." The specification describes the

spiral axle-box springs of the patent in suit, and "suitable springs" for supporting the car body at the ends "which may be either of the spiral species as shown at *t t*, or of the so-called semi-elliptical form as shown at t^1 in figures 4 and 5 of the drawings, which latter form of spring is disposed cross-wise of the truck and rests with its ends in suitable shoes." It also shows saddles mounted like those of Brill upon the axle boxes. Of this patent the expert for the complainant makes this statement: "While the construction shown in this Peckham patent clearly does not embody the combination recited in the several claims of the Brill patent in suit, and while the Peckham patent contains no indication that any advantage would be attained by the use of a semi-elliptic spring across each end of the car in conjunction with spiral springs supporting the car body over the journal boxes, I am inclined to think that the construction embodying the semi-elliptic springs would measurably attain the result that is attained by the conjoint use of the spiral and elliptical springs as embodied in the Brill truck, and that a car having the truck structure shown in figures 4 and 5 of this Peckham patent would be less liable to excessive longitudinal oscillation than any of the trucks of the prior art heretofore considered."

It thus appears that it was old in the prior art to employ for the purpose of obviating the oscillation of the car body all the parts enumerated in the first and second claims except the two kinds of springs in the same car truck, and that the only novelty in the inventions of those claims, details of construction being disregarded, consists in the substitution of both spiral and elliptical in the place of either spiral or elliptical springs. Indeed, the inven-
258 tions are wanting even in this measure of novelty, and reside merely in the substitution of elliptical for the semi-elliptical end springs. The claims are not limited to longitudinal end springs, as the specification points out they are only preferably employed; and the circumstance that the semi-elliptic springs of the Peckham patent extend transversely instead of longitudinally is therefore immaterial. It is manifest that the inventions secured by the claims are of a very narrow character, and that they cannot receive the broad construction which their language would authorize without affirming their invalidity for want of patentable novelty. It would be merely an aggregation of old parts to supplement the spiral springs by the elliptic springs, or the elliptic springs by the spiral springs, and would not involve invention, unless some new mode of operation due to the conjoint action of the two kinds of springs should result from doing so. It is asserted that a new result is obtained by the conjoint use of the two kinds of springs in that it breaks the r-ythm of the impulses imparted by each kind and thereby decreases the amplitude of the oscillation of the car. But when it is shown that the substitution merely consisted in employing elliptic springs in conjunction with the spiral springs, instead of semi-elliptic springs in conjunction with such springs, and that this substitution produces merely an improved and not a new result, the structural changes in form and arrangement which may

be discovered in the specification afford the only features of novelty which can support the claims.

A reference to the language of the specification shows that the patentee contemplated special features of construction and arrangement of the springs, and made them a part of his invention as disclosed in the patent. The specification in describing the springs uses this language: "The spiral springs, which are supported by or about the axle boxes, normally take the weight of the car. Between the extended sections of the upper chord and the side beams (that is near the ends of the truck) I place elliptical springs, which preferably extend longitudinally of the truck, and which
259 are so disposed that they will not be brought into action until the weight of the load on the axle-box springs begins to depress said spring abnormally. Then the elliptical springs begin to act and assist the spiral springs in resisting the pressure of the load." Again he says: "It is therefore clear that more than the ordinary load is intended to be carried on this structure, and for this reason more than ordinary devices for spring-supporting the car body are necessary. To this end I supplement the axle-box springs by placing elliptic springs of slower action between the extended portions or sections of the said beam and upper chord, and so arrange them in respect to each other that the elliptic springs will not come into play until after the axle-box springs have begun to compress, and the action of the spirals in lifting the car body is continued after the elliptic springs have ceased to act." In the detailed description of the various parts the specification points out that the elliptic springs are not secured at the top to the upper chord, but are held in place by a cap having downward extending legs. "The cap is interiorly chambered, so as to permit the elliptic spring 34[1] to move within it, the legs 46 acting to keep the said spring perpendicular, while space is left between the inner top portion of the cap and the top of the spring to permit the upper chord to be depressed some distance before the cap begins to depress the elliptic spring." Thus a space is left between the upper chord, upon which the pressure from the car body is exerted, and the top of the spring, which will prevent compression of the elliptic springs until compression of the spiral springs has already taken place.

If the patentee had attempted to do so it would have been difficult to frame a specification which more industriously sets forth as essential to his invention such a construction and arrangement of the spring devices that the elliptic springs will not be brought into play until the spiral springs have been compressed by the weight of the car body and the added load, "until the weight of the load on the axle-box springs begins to depress said
260 springs abnormally." This characteristic of the invention must be imported into the claims, and would have to be if the qualifying term "substantially as described" had not been incorporated into them.

We do not overlook the consideration that in other claims of the patent this functional characteristic of the invention is made a limitation in terms. Those claims, however, differ in other respects

from the two claims in controversy. There are 28 claims in all, and some of them are merely duplicates of others, varying in phraseology but not in substance. They were obviously framed to cover any possible theory of the invention which is hinted at in the specification, and which the exigencies of an infringement action may require.

The case is one in which it is apparent that the complainant cannot ultimately prevail, and following the practice sanctioned by Stover Mfg. Co. *v.* Mast Foos Co. (177 U. S., 485), one in which the bill should be dismissed.

The order granting the injunction is therefore reversed with costs, and the cause remitted to the court below with instructions to vacate the injunction and dismiss the bill with costs.

Henry P. Wells, for the appellants.

Francis Rawle and Frederick P. Fish, for the appellees.

261 United States Circuit Court of Appeals for the Second Circuit.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY ET AL., Defendants, Appellants.

Petition of Appellees for a Rehearing.

Frederick P. Fish, Francis Rawle, of counsel for petitioner.
Joseph L. Levy, solicitor.

[Stamped:] United States circuit court of appeals, second circuit. Filed May 8, 1901. William Parkin, clerk.

262 United States Circuit Court of Appeals, Second Circuit.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY and Others, Defendants, Appellants.

Petition of Appellees for a Rehearing.

The appellees in the above-entitled cause respectfully petition this honorable court that a rehearing may be granted, and that the decree of this court be modified in so far as it instructs the circuit court to dismiss the bill with costs.

This appeal was taken from an order granting a preliminary injunction upon affidavits; and as to that portion of the decree of this court which reverses the injunction order, and instructs the court below to vacate the injunction, complainants do not ask for a rehearing. For complainants, though believing themselves to be

aggrieved by the refusal of preliminary injunction, have had their "day in court" upon this issue.

But the complainants respectfully submit that this case should not be finally disposed of at this stage of the proceedings
263 upon *ex parte* affidavits. Under the practice in this circuit the complainants have had no opportunity at all to answer by affidavits the defendants' affidavits, which were filed at the hearing; moreover, they had substantially no opportunity to reply orally to defendants' argument. Furthermore, the complainants' counsel have not had the two hours' hearing in this court to which they are entitled under the rules upon an appeal from a decree on final hearing, but have only had the one hour which is allotted to the summary presentation of an argument on preliminary injunction.

Complainants submit that it would be an intolerable hardship and injustice to the complainants, if they should be deprived of the opportunity to present testimony on their own behalf and also to cross-examine the defendants' witnesses upon the following issues, among others, namely:

1. The actual operation of the defendants' devices as compared with the devices of the patent in suit.

2. The question whether defendants' devices infringe not only claims 1 and 2 but also other claims of the patent in suit, hereafter enumerated.

3. The question how the devices of the Peckham patent, No. 419,876 operate, and whether they necessarily limit the complainants' patent in the manner adjudged by this court.

4. The question whether the complainants' invention antedates the said Peckham patent.

5. (If there is any doubt upon the point.) The utility and value, as well as the wide adoption and use, of the devices of the patent in suit.

Finally, the complainants have never, either by brief or orally, argued the question of the dismissal of the bill. They failed to realize that there was any possibility that the court would dismiss the bill at this stage of the litigation, and therefore they did not deal with the question in their brief. Complainants' oral argument was confined to the merits of the motion, as again their counsel were so unfortunate as not to realize that the court might regard this case as coming under the very carefully guarded rule of the Mast-Foos case as to the right to dismiss a bill on motion for preliminary injunction. The complainants' counsel erred in this regard, but it is respectfully submitted that the error was excusable, and that in any event the complainants should not suffer for it.

Introduction.—How this Case Came Before this Court.

A previous suit upon this patent (Brill *vs.* Third Avenue Railroad Co.) was heard by Judge Shipman upon a long and elaborate record. Upon that record the learned judge affirmed the utility and patentability of the Brill invention in the most emphatic terms, saying (p. 239 of the present record):

264 "The invention, as a whole, attracted the immediate attention of railway superintendents, was found to accomplish its object and to be almost a complete remedy, and trucks having spiral springs next to the axle boxes, and elliptical springs on the extensions of the truck frames, have been universally adopted."

The court again, on page 243, referred to the utility and novelty of the broad invention in equally emphatic terms.

If there is any doubt in the minds of this court of the correctness of Judge Shipman's findings on these points, we desire the opportunity to establish these points by testimony in this case; but, if there is (as we believe) no doubt on the subject, the merit of the Brill patent is plain; and the patent should be so construed, if possible, as to protect the substance of the invention.

Judge Shipman also compared the different claims of the patent fully, and held expressly that the feature of the successive compression of the spiral and the elliptical springs was not a feature of claims 1 and 2. He said (p. 238):

"The gist of the invention consisted in combining with the frames of the truck and the spiral springs, another class of springs—viz., elliptical springs—between the car body and the extensions of the independent frame. The elliptical springs are slower in their action than the spiral springs and neutralize the longitudinal oscillation of the car body. * * * This leading feature of the invention is described in claims 1 and 2, which do not contain the limitations of the invention described in the next paragraph" (referring to the successive compression).

And the court again said (p. 243):

"It has already appeared that the gist of the invention is described in claims 1 and 2."

The court further considered the very numerous patents
265 cited and discussed by defendants (including the Manier patent 409,993 and Peckham patent 419,876, referred to in the opinion of the court), and held that none of these patents anticipated or limited Brill's invention.

Fortified by this decision upon a full record, the complainants filed their bill in this case, in which they averred that the defendants had infringed the patent in suit, without limiting this allegation to any particular claims (Record, p. 5).

The defendants' trucks, as is not denied, have that combination of spiral and elliptical springs which Judge Shipman had found to be "the gist" of the complainants' invention, and to be covered by claims 1 and 2 irrespective of the sequence of compression of the springs. Therefore, the complainants confined their motion for preliminary injunction to claims 1 and 2, as to the infringement of which it was supposed there could be no doubt in view of Judge Shipman's adjudication; and the complainants' affidavits have no discussion whatever of the comparative strength of defendants' elliptical and spiral springs or of their order of operation, such discussion or proof being quite immaterial, under Judge Shipman's decision, to the complainants' case upon claims 1 and 2.

In fact, the preliminary injunction motion was properly supported

by proofs of an almost formal character, to the effect that the defendants' devices embodied the invention of claims 1 and 2 as interpreted by Judge Shipman, such proof being sufficient to entitle the complainants to a preliminary injunction in the circuit court, under the well-established rule.

No new evidence as to the prior art has been offered by defendants on this motion; but this court held that in view of the Peckham patent 419,876, aided by the language of the specification of the patent in suit (both of which were fully before Judge Shipman), Judge Shipman's interpretation of claims 1 and 2 was erroneous, and that, therefore, the injunction must be vacated.

Inasmuch as the circuit court was clearly warranted by Judge Shipman's decision in granting an injunction, and as no new
266 evidence of any description was adduced in this case, the decision of this court may well have operated as a surprise to the complainants; for the usual practice of this court is not to treat an appeal from an injunction order, granted under such conditions, as if it were an appeal from the previous adjudication upon final hearing. In Consolidated Fastener Co. *vs.* Hays, 100 Fed. Rep., 984, 989, this court lays down the following principles:

"Shortly after its organization this court had occasion to enunciate the proposition, that where there was an appeal from an order granting preliminary injunction, the court below having followed an adjudication at circuit sustaining the patent after contest upon pleadings and proofs, such adjudication is to have the same weight which it should have before the circuit court. * * * The propriety of some such rule is apparent. The prior adjudication has been secured by complainant on testimony which has been sifted by cross-examination, and it would seem that he should be entitled to cross-examination of defendants' experts before being deprived of the advantage of his previous decree. Especially so in view of the ease with which *ex parte* affidavits of experts, exploiting any theory desired, may apparently be obtained. This practice has been ever since adhered to by this court."

Relying on the rule above enunciated, the complainants applied for a preliminary injunction upon the strength of Judge Shipman's decision, and on appeal from the injunction order this court has held Judge Shipman's rulings as to said Peckham patent, and as to the gist of the invention described in the patent in suit, to be erroneous, and therefore has revoked the injunction. To that decision we bow. But we submit that the complainants should not be altogether cut off, by a final decree dismissing the bill upon this incomplete record, from the opportunity of sustaining by proper proofs a patent which has been held to be so important an advance in this particular art.

267 In Mast-Foos Co. *vs.* Stover Mfg. Co., 177 U. S., 495, the Supreme Court very carefully limited the cases where the bill should be dismissed on appeal from a preliminary injunction order, and showed that such cases were altogether exceptional in character. The court said expressly:

"If the showing made by the plaintiff be incomplete, * * *

then, clearly, the case should be remanded for a full hearing upon pleadings and proofs."

This surely is the case at bar, as we shall proceed to show.

Again the court says:

"Ordinarily, if the case involves a question of fact, as of anticipation or infringement, we think the parties are entitled to put in their evidence in the manner prescribed by the rules of this court for taking testimony in equity cases."

Certainly, this case involves both questions of anticipation and of infringement.

The court proceeds to say that a bill should be dismissed, if there is a clear anticipation, or if it appear clear that there is no infringement, "and no suggestion be made of further proofs upon the subject." Here there is clear need of further proofs.

We submit that the owner of a patent, in asking for a preliminary injunction upon the strength of a prior adjudication, has the right to rely upon that adjudication, and upon such motion need not establish a second time, by full proofs, all the points which have been already adjudicated by the court. The very purpose of a preliminary injunction is to enable the complainant to reap the fruits of his prior victory won upon full proofs, and to hold matters in *statu quo* pending a final hearing in the subsequent suit. If a complainant on every preliminary injunction motion must offer affidavits fully covering every point set forth in the previous record for final hearing, it will impose not only an intolerable hard-
268 ship upon complainant, but an insupportable burden upon the courts.

Judge Shipman adjudged, in the most explicit manner, that claims 1 and 2 covered broadly the combination of spiral and elliptical springs; that this combination was of great value and was novel with Brill, and that the Peckham patent and the Manier patent had no tendency to anticipate this broad combination.

The complainants then came into court (according to the proper practice) with affidavits showing that the present defendants' constructions are within the scope of claims 1 and 2, as interpreted by Judge Shipman, and asked on the strength of that prior adjudication for a preliminary injunction with regard to those claims. No new references were cited by defendants, but on appeal this court held that Judge Shipman's view of the Peckham patent was erroneous, and that these claims must receive a narrower construction. The court, therefore, ordered the preliminary injunction to be vacated.

But we submit that the complainants have a right to be heard, upon full proofs, upon any issue of fact arising under claims 1 and 2, or any other claims, and that this case should not be finally disposed of by the court upon the incomplete and almost formal record presented by the complainants.

We will now proceed to set forth in order the principal points upon which the complainants desire opportunity to put in evidence in the manner prescribed by the rules, and to be fully heard by this court upon an appeal from final hearing in the ordinary course.

269 I.

The Mode of Operation of Complainants' and Defendants' Springs.

We desire opportunity to show that the actual operation of the combined elliptical and spiral springs described and shown in the Brill patent in suit and of those found in the defendants' infringing structures is substantially identical. In view of the decision of this court, the importance of this point cannot be overestimated, and the complainants desire to present full proofs thereon.

The complainants desire to show that in the Brill structure when the car body is placed upon the movable portion of the truck supported by the springs, the spiral springs are forthwith compressed; and that in the actual use of the loaded car both sets of springs support the weight of the car and its load and prevent longitudinal oscillation. Any other mode of construction would be an absurdity. The object of using the two kinds of springs is to prevent oscillation, and they co-operate to this end in practical use.

It is admitted in defendants' affidavits that an elliptical spring has a more sluggish action than a spiral spring. See, for example, Abbott (p. 223):

"It is true that owing to the frictional contact between the leaves of an elliptic spring, or semi-elliptic, that its action is more sluggish than that of coiled, or, as they have been called in this case, spiral springs."

See, to the same effect, Fowler, p. 164; Newbury, p. 187.

So the Brill patent says (p. 2, line 4):

"The elliptical springs being slower in their action than the spiral springs."

It is for this reason that the combination of the elliptical
270 with the spiral springs prevents the longitudinal oscillation of the car by breaking the rhythm, as Judge Shipman found (p. 238), and it is absolutely immaterial to this novel result whether the elliptical springs or the spiral springs come into play first when the car body is placed upon the truck. The main point is that, in operation, when both sets of springs are working, the elliptical springs, being more sluggish, break the rhythm, and so prevent oscillation.

As a subordinate matter, there is probably some advantage in having one or other set of springs mainly support the car when there is a very light load, because, if all the springs were in action with such a light load, the car would ride stiffly, being too rigidly supported by the combined action of all the springs. Of this subordinate invention Judge Shipman held (p. 243):

"The result of the minor invention of claims 9, 10, 11 and 14 was important, though, upon first inspection, its marked importance does not appear, but it perfected the general invention of the first two claims."

It is obvious—and the complainants believe they can easily show, if given the opportunity—that it is wholly unimportant in practice whether it is the elliptic springs or the spiral springs that mainly

support the car with a light load. In fact, we do not understand that any one has suggested that there is any practical difference in this particular.

But the main feature of the invention is the co-operation of the two kinds of springs to prevent oscillation. Just how heavy the load must be before both sets thus co-operate, it is, of course, impossible to specify, and the Brill patent does not attempt to specify. In two places (p. 1, line 73; p. 2, line 3), the Brill patent speaks generally of the "abnormal" depression of the car; but this phrase clearly has no definite significance. The point is that one set of springs will first come in action with a very light load, and that thereafter, both sets will co-operate to prevent the objectionable oscillation.

271 Our view of the operation of the Brill springs is supported by the affidavit of Mr. Abbott for defendants (p. 298), in which he depicts Brill as supporting the car body upon the spiral springs, "when the car is empty or carrying a small load," so that "it may ride easily and smoothly," and as providing "elliptical springs so combined with the spiral springs as that, when a heavy load is present or the car subjected to abnormal depressing influences—for instance, rapid travel over a rough road-bed—then these elliptical springs would be called into action in aid of, or as the patent says 'supplemental to' the spiral springs."

This statement is substantially correct, only that to our mind the contrast is between a substantially empty car and a loaded car, and not between a small and a heavy load.

This view is supported by the affidavit of another of defendants' witnesses, Mr. Beetem, a practical railway man, who says (p. 174):

"In the trucks manufactured by the Brill Company the entire weight of the empty car body is carried upon the spiral springs."

But the main point is that, in the travel of a car with its load, both sets of springs shall support the weight and prevent oscillation.

Of the operation of the defendants' car-truck springs, the opinion of this court says:

"In the car trucks of the defendant both sets of springs are brought into action and begin to compress simultaneously when the weight upon them is greater than the normal weight of the car."

This is precisely the mode of operation which is described in the passages from the Brill patent cited by the court (as for example, page 1, lines 69–75), and in Mr. Abbott's affidavit as just quoted.

As to the actual operation of the defendants' springs the complainants have offered no proofs, having no opportunity to

272 reply to defendants' affidavits. The defendants' affidavits are vague on the subject of the action of defendants' springs, and their statements could be elucidated by proper cross-examination.

It is conceded, however, that the springs co-operate in the actual running of loaded cars. The witnesses are emphatic only on the fact that the elliptical springs are the stronger of the two. See, for example, Peckham (p. 146), who says:

"The weight of the car has always and invariably almost wholly

been thrown upon the elliptical springs, which have always been the stronger springs and the controlling springs. * * * The greater part of the weight of the car body has always rested upon and been supported by the elliptical springs."

Beetem, the practical railway man to whose testimony we have already referred, says of the defendants' trucks (p. 173):

"The arrangement of the car-supporting springs is such that the weight of the car body is first supported upon four elliptical springs, which are rigidly secured between the top and bottom, and carry the greater part of the weight of the car body. The spirals, which are weaker, carry the remainder of the load."

Similarly, on page 174, he says:

"The spiral springs are made weaker and reinforce the elliptical springs as the load of the car increases."

Complainants submit that they are entitled to the opportunity to cross-examine these witnesses.

The complainants can show, if they are given opportunity, that, in the actual running of a car carrying passengers, the operation of the combined elliptical and spiral springs will be precisely and exactly the same in the defendants' trucks as in the truck described and shown in the patent in suit, and will prevent oscillation in just the same manner.

273 And the complainants can further show that there is also the same action, in substance, when the empty car is put upon the movable part of the truck; in the complainants' patent the spiral springs are the first to take this weight of the empty car body and to be depressed, while in the defendants' construction the elliptical springs first receive and support the weight of the empty car body. Thereafter both sets co-operate.

We claim that we have the right to make experiments to show what the actual action of defendants' springs is. Such proofs were immaterial under Judge Shipman's construction of claims 1 and 2. But if, upon full proofs, the complainants fail to show that the Peckham patent does not interfere with that construction of those claims, we shall submit that claims 1 and 2, as well as other claims hereafter mentioned, even if limited, should receive a less limited interpretation than this court has now imposed upon them and one which will still cover the defendants' combination of elliptical and spiral springs if they operate in the manner just set forth, as we believe we can prove they do, and as the defendants' affidavits indicate that they do.

In other words, if it must be held a material feature of the complainants' broad invention (which we deny), that one set of springs receives the weight of the empty car body before the other, we shall argue that claims 1 and 2 (and also other claims) cover an organization in which the elliptical springs operate before the spiral springs, as well as one in which the spiral springs operate before the elliptical springs, there being no practical difference between these two constructions; and we urge that we have a right to be heard upon this proposition, upon which we have never been heard.

274

II.

Other Claims of the Patent in Suit.

At final hearing, in addition to claims 1 and 2 (which alone were in issue on the preliminary injunction motion), we desire to present other claims—notably claims 9 and 10, both of which relate to the successive compression of two sets of springs, but without specifying that it is the spiral springs which are compressed before the elliptical springs. Claim 9 simply states that some of the springs are compressed subsequent to other springs, which applies to all the defendants' forms of truck, as shown in the diagrams (Record, p. 72); while claim 10 specifies that the end springs are compressed subsequent to the other springs, which applies to the defendants' "Standard" and "Extra Long" trucks, which had extra spiral springs at the end of the truck outside the elliptical springs.

We claim the right to introduce these claims in issue and to give testimony about them.

III.

The Peckham Patent, No. 419,876.

In restricting claims 1 and 2 of the Brill patent to a narrower scope than that given to these claims by Judge Shipman, the opinion of this court relies mainly upon the Peckham patent and upon one quotation relating thereto from Mr. Livermore's deposition in the Third Avenue suit. The court states that the language of these claims would authorize a broader construction, saying:

"They cannot receive the broad construction which their
275 language would authorize without affirming their invalidity for want of patentable novelty. It would be merely an aggregation of old parts to supplement the spiral springs by the elliptical springs or the elliptical springs by the spiral springs, and would not involve invention, unless some new mode of operation, due to the conjoint action of the two kinds of springs, should result from so doing."

The court then proceeds to find that, in view of Peckham, and of Peckham alone, there was no new mode of operation or new result produced by Brill's combination.

It must be borne in mind that every presumption is against this Peckham patent disclosing a structure having the same mode of operation as the Brill combination of springs; for it appears that Peckham, in all his three types of trucks here complained of as infringements (Record, p. 72) combines with the spiral springs full-elliptical springs, located between the extended sections of the sides of the upper chords and of the side beams, precisely as Brill did, and has not used the transverse semi-elliptical springs of his own patent, as it was open for him to do without any accusation of infringement.

In fact, this Peckham patent is a mere paper patent. Neither Mr. Peckham in his affidavit describing various forms of car truck used by defendant company, nor any other of defendants' witnesses,

suggests that such a construction as that shown in this Peckham patent has ever been practically employed by Mr. Peckham or either of the Peckham Companies. In fact, as is shown by the Record (p. 91), the Peckham Company continued up to 1895 to advertise car trucks supported by sets of spiral springs only; and it was after the issue of the Brill patent, and the wide adoption of the Brill invention, that the Peckham Company began the use of its infringing constructions, and Peckham applied in 1894 and in 1895 for two patents, Nos. 555,530 and 563,685, which show the combination of spirals and full elliptics on the side beams, here complained of as infringements.

276 Judge Shipman held in the Third Avenue case, in the most emphatic language (p. 242) that the Peckham patent was irrelevant because the construction "has not the conjoint action of the patented combination, nor does it perform the function of the Brill device;" and pointed out (p. 241) that defendants' expert in that case had not referred to this patent in his direct examination as one of the "best anticipations."

The complainants, in the preliminary injunction motion relying on Judge Shipman's decision, gave no testimony as to the actual operation of the Peckham structure; nor did the defendants offer any testimony on this point, beyond the bare assertion that a semi-elliptical and an elliptical spring were the same thing.

The court has now reversed Judge Shipman's finding as to this Peckham patent mainly because of one isolated expression in the deposition of complainants' expert in the very record which was before Judge Shipman.

We ask for the opportunity of proving by proper evidence and experiment that the construction of the Peckham patent (Figs. 4 and 5) is radically different from that used by Brill and in the defendants' infringing truck, not so much because it has a semi-elliptical spring, as because there are no elliptical or semi-elliptical springs located between the extended sections of the upper chord and the side beams to support the car body at each of its four corners; on the contrary, each of the two semi-elliptical springs is carried across the truck transversely, so that it contacts at its middle with a supplementary transverse truss at the front or rear of the car body, and its ends play loosely in shoes on the side beams.

We can prove, if given the opportunity, that such a construction is radically different from Brill's in operation and result.

This court quotes in its opinion the words of the Brill patent (p. 1, lines 66–69), "between the extended sections of the upper chord and the side beams I place elliptical springs, which

277 preferably extend longitudinally of the truck;" and, we submit, misinterprets that language. For the court deduces from this passage the conclusion that "the circumstance that the semi-elliptical springs of the Peckham patent extend transversely instead of longitudinally is, therefore, immaterial." But the point of this passage is that the four elliptical springs support the four corners of the car, and are, therefore, necessarily placed "between the extended sections of the upper chord and the side beams." In

this location each of the four springs may extend either longitudinally or transversely, although, obviously, the longitudinal is the preferable position, as the patentee says. But Peckham's semi-elliptical springs are not between the longitudinal extensions of the upper chords and the side beams at all; each is between the two side beams and a transverse truss, and, therefore, each of the four corners of the car is left without any support, a construction which would be wholly inoperative in practical use. Judge Shipman had this distinction in mind where he states of the Peckham patent (p. 242):

"The upper beams are supported on spiral springs on the axle boxes."

The distinction is not, as this court seems to suppose, in which direction the elliptical springs extend, but where they are located.

This matter of the location of the elliptical springs is mentioned over and over again in the Brill specification. For example, page 2, line 122:

"By placing elliptical springs of slower action between the extended portions of sections of the side beams and upper chord."

Line 130:

"The devices which secure the elliptical springs between the side beams and the upper chord."

278 Page 3, line 26:

"The (elliptical) springs are rigidly secured to *to* the side beams."

Line 171:

"A portion of this action would be taken on the springs supported on the ends of the side beams."

We desire an opportunity of showing, by practical testimony, that there is a vital difference between the location of the complainants' and defendants' elliptical springs, on the one hand, and the location of the semi-elliptical spring of the Peckham patent on the other; that not only had Peckham in his patent no notion of the utility of combining elliptical and spiral springs (as is evident both from the language of this patent and from his own subsequent patents), but that the construction shown by him in Figs. 4 and 5 of this patent was not practical.

We should desire, also, to show other features which distinguish the construction of the Peckham patent from that of the Brill patent, and prove that the former is not useful. For example, in the Brill patent, as in the defendants' infringing trucks, the side beams of the "stationary frame" are rigidly connected with the axle-box saddles. As Judge Shipman said (p. 237):

"In the patented structure a pair of rigid longitudinal side beams, which derive their support from the axle boxes, extend lengthwise of the truck beyond the wheels at each end."

On the other hand, the Peckham patent shows the side beams pivotally connected with the axle boxes, so as to be able to swing back and forth longitudinally—a perfectly useless construction, which has never been practically used; and there are other important practical differences.

We submit that the complainants should not be deprived of the

substance of their patent until they at least have the opportunity to offer proof about this Peckham patent, and to cross-examine the defendants' witnesses, if they attempt to controvert this proof. Such proof was not called for in the Third Avenue case, since defendants' testimony did not assert that this Peckham patent anticipated or limited the Brill patent.

279

IV.

The Date of Plaintiffs' Invention.

Inasmuch as Judge Shipman found the Peckham patent not to be a reference, the question of the date of the complainants' invention was not deemed material to the argument upon this injunction motion. The complainants believe that they can show that Brill's invention antedates the application for the Peckham patent in question; and we submit that the complainants should have an opportunity to offer testimony and to be heard fully on this question, which has never yet been adjudicated.

Conclusion.

The complainants are confident that, upon full proofs, with full opportunity for cross-examination to both sides, the court will be convinced that the defendants' car trucks operate substantially in accordance with what is described in the Brill patent, and infringe not only claims 1 and 2 (whether broadly interpreted or narrowed beyond the interpretation given to those claims by Judge Shipman), but also claims 9 and 10 and possibly other claims; and that the Peckham patent discloses a structure which does not produce the useful results which were novel with Brill and are common to the truck of the Brill patent and the defendants' trucks.

Wherefore, the complainants, appellees, respectfully petition that a rehearing may be granted, and that the decree of this court may be modified, in so far as it instructs the court below to dismiss the bill with costs.

280

FREDERICK P. FISH,
FRANCIS RAWLE,
Of Counsel for Complainants.

JOSEPH L. LEVY, *Solicitor.*

The undersigned, counsel for the complainants in the above-entitled suit, hereby certify that in their opinion there is good ground for the petition for rehearing hereinbefore contained, and that said petition is not presented for purposes of delay.

FREDERICK P. FISH.
FRANCIS RAWLE.

At a stated term of the United States circuit court of appeals for the second circuit, held at the court-rooms in the post-office building, city of New York, on the 16th day of May, 1901.

281

Present: Hon. William J. Wallace, Hon. Edward B. Thomas, Hon. Hoyt H. Wheeler, judges.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY ET AL., Defendants, Appellants.

A petition for a rehearing having been filed herein by counsel for the appellees, and the same having been duly considered, it is hereby

Ordered that said petition be and it hereby is granted, and that briefs be submitted within twenty days from the date of this order—no oral argument to be had.

WM. J. WALLACE.

Endorsed: United States circuit court of appeals, second circuit. John A. Brill *et al. vs.* Peckham Motor Truck & Wheel Company. Order. United States circuit court of appeals, second circuit. Filed May 18, 1901. William Parkin clerk.

282 United States Circuit Court of Appeals for the Second Circuit, October Term, 1900.

Submitted May 16, 1901; decided August 22, 1901.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
vs.
THE PECKHAM MOTOR TRUCK AND WHEEL COMPANY, Defendants, Appellants.
No. 139.

On the reargument of the appeal from the circuit court of the United States for the southern district of New York.

Before Judges Wallace, Wheeler, and Thomas.

Per Curiam: A reargument was granted in this cause because the court deemed it proper to reconsider that part of its former order directing a dismissal of the complainants' bill. A majority of the court remain of the opinion that there should be no modification of the order. Accordingly a mandate will issue pursuant to the terms of the former order.

Submitted without argument.

283 At a stated term of the United States circuit court of appeals for the second circuit, held at the court-rooms in the post-office building, city of New York, on the 3rd day of September, 1901.

Present: Hon. William J. Wallace, circuit judge, and Hon. Hoyt H. Wheeler and Hon. Edward B. Thomas, district judges.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY ET AL., Defendants, Appellants.

The appellee having moved for a rehearing in this cause and such rehearing having been granted; and the appellee having moved thereon that the decision be modified by striking out so much thereof, as directs a dismissal of the bill of complaint;

Now it is ordered that said motion be and it hereby is denied.

W. J. W.

Endorsed: United States circuit court of appeals, second circuit. John A. Brill *et al. vs.* Peckham Motor Truck & Wheel Co. Order. United States circuit court of appeals, second circuit. Filed Sep. 5 1901.

284 At a stated term of the United States circuit court of appeals, in and for the second circuit, held at the court-rooms in the post-office building in the city of New York, on the 3rd day of September, one thousand nine hundred and one.

Present: Hon. William J. Wallace, circuit judge, and Hon. Hoyt H. Wheeler and Hon. Edward B. Thomas, district judges.

JOHN A. BRILL and THE J. G. BRILL COMPANY, Complainants, Appellees,
vs.
THE PECKHAM MOTOR TRUCK & WHEEL COMPANY ET AL., Defendants, Appellants.

Appeal from the circuit court of the United States for the southern district of New York.

This cause came on to be heard on the transcript of record from the circuit court of the United States, for the southern district of New York, and was argued by counsel.

On consideration whereof, it is now hereby ordered, adjudged and decreed that the order of said circuit court be and it hereby is reversed with costs, and cause remanded to said court with instructions to dismiss the bill.

It is further ordered that a mandate issue to the said circuit court in accordance with this decree.

W. J. W.

285 Endorsed: United States circuit court of appeals, second circuit. J. G. Brill *et al. vs.* Peckham Motor Truck & Wheel Co. Order for mandate. United States circuit court of appeals, second circuit Filed Sep. 5, 1901. William Parkin, clerk.

286 UNITED STATES OF AMERICA, } ss.:
Southern District of New York, }

I, William Parkin, clerk of the United States circuit court of appeals for the second circuit, do hereby certify that the foregoing pages, numbered from 1 to 285 inclusive, contain a true and complete transcript of the record and proceedings had in said court, in the case of J. A. Brill & J. G. Brill Company, against Peckham Motor Truck & Wheel Co. as the same remain of record and on file in my office.

In testimony whereof, I have caused the seal of the said court to be hereunto affixed, at the city of New York, in the southern district of New York, in the second circuit, this 24th day of October, in the year of our Lord one thousand nine hundred and one and of the Independence of the said United States the one hundred and twenty-sixth.

Seal United States Circuit Court of Appeals, Second Circuit.

WM. PARKIN, *Clerk.*